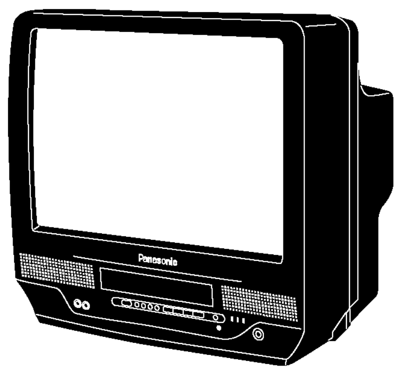
ORDER NO. MKE0001100C1
B3, B6

Service Manual

Combination VCR

Omnivision VHS



PVQ-1310
PV-C1320
PV-C1330W
VV-1300
VV-1310W
PV-C1340
PV-C1350W
PV-C2010
PV-C2020
PV-C2030W
VV-2000
PV-C2060

ITEM		SPECIFICATION	1	2	3	4	5
VCR	Video	Head: 2 rotary heads helical scanning system 4 rotary heads helical scanning system	o -	o -	- o	o -	- o
		Input Level: VIDEO IN Jack (Phono type) 1.0 Vp-p 75 Ω unbalanced Signal-to-Noise Ratio: SP: more than 43 dB LP/SLP: more than 41 dB Horizontal Resolution: Color/Monochrome: more: SP : 230 lines LP/SLP : 220 lines	o	o	o	o	o
	Audio	Head: Normal Mono: 1 stationary head	o	o	o	o	o
		Input Level: AUDIO IN Jack (Phono type) -10 dBv 50 kΩ unbalanced	o	o	o	o	o
		Frequency Response: Normal Mono: SP: 100 Hz-8 kHz LP: 100 Hz-6 kHz SLP: 100 Hz-5 kHz	o	o	o	o	o
		Signal-to-Noise Ratio: Normal Mono: SP: more than 42 dB LP/SLP: more than 40 dB	o	o	o	o	o
		Wow and Flutter: Normal Mono: SP Less than 0.2 % WRMS LP: Less than 0.3 % WRMS SLP: Less than 0.4 % WRMS	o	o	o	o	o
	Tuner	Broadcast Channels: VHF 2~13, UHF 14~69 CABLE Channels: Midband A through I (14~22) Superband J through W (23~36) Hyperband AA~EEE (37~64) Lowband A-5~A-1 (95~99) Special CABLE channel 5A (01) Ultraband 65~94, 100~125	o	o	o	o	o

ITEM		SPECIFICATION	1	2	3	4	5
VCR	Tape Speed	SP: 1-5/16 i.p.s (33.35 mm/s), LP: 21/32 i.p.s (16.67 mm/s), SLP: 7/16 i.p.s (11.12 mm/s) Record/Playback Time: 8 hr. with 160 min. type tape used in SLP mode FF/REW Time: Less than 2-1/2 min. (120 min. type tape)	o	o	o	o	o
	Tape Format	Tape width 12.7 mm (1/2 inch) high density tape	o	o	o	o	o
FM Radio	Band Range	87.5 MHz-108.1 MHz	-	o	o	-	o
DISPLAY	Picture Tube	13 inch measured diagonal 90° deflection Picture Tube 20 inch measured diagonal 90° deflection Picture Tube	o -	o -	o -	- o	- o
GENERAL	Power	Source: 120 V AC±12 V AC, 60 Hz±3 Hz	o	o	o	o	o
		Comsumption: Approx. 69 W (Power On), Approx. 4.5 W (Power Off) Approx. 110 W (Power On), Approx. 4.5 W (Power Off)	o -	o -	o -	- o	- o
	Television System	EIA Standard (525 lines, 60 fields) NTSC Color Signal	o	o	o	o	o
	Operating Condition	5 °C-40 °C (41 °F-104 °F) (Temperature) 10 %-75 % (Humidity)	o	o	o	o	o
	Dimension	386 mm x 385 mm x 374 mm (W x H x D) (15-3/16 inch x 15-3/16 inch x 14-3/4 inch (W x H x D)) 515 mm x 505 mm x 474 mm (W x H x D) 20-5/16 inch x 19-7/8 inch x 18-11/16 inch (W x H x D)	o -	o -	o -	- o	- o
	Weight	12 kg (26.4 lbs.) 23 kg (50.6 lbs.)	o -	o -	o -	- o	- o

1. PVQ-1310/VV-1300/VV-1310W
2. PV-C1320/PV-C1330W
3. PV-C1340/PV-C1350W
4. PV-C2010/PV-C2020/PV-C2030W/VV-2000
5. PV-C2060

Weight and dimensions shown are approximate.
Designs and specifications are subject to change without notice.

Panasonic® / Quasar®

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CONTENTS

1 SAFETY PRECAUTIONS

GENERAL GUIDELINES

1. **IMPORTANT SAFETY NOTICE**

   There are special components used in this equipment which are important for safety. These parts are marked by ⚠ in the Schematic Diagrams, Circuit Board Layout, Exploded Views and Replacement Parts List. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent X-RADIATION, shock, fire, or other hazards. Do not modify the original design without permission of manufacturer.

2. An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.
3. When servicing, observe the original lead dress, especially the lead dress in the high voltage circuits. If a short circuit is found, replace all parts which have been overheated or damaged by the short circuit.
4. After servicing, see to it that all the protective devices such as insulation barriers, insulation papers, shield, and isolation R-C combinations are properly installed.
5. Before turning the receiver on, measure the resistance between B+ line and chassis ground. Connect (-) side of an ohmmeter to the B+ lines, and (+) side to chassis ground. Each line should have more resistance than specified, as follows :

   (Model: A, B, C, D, E, F, G)

B+ Line	Minimum Resistance
115 V	1 k Ω (Cold chassis ground)
24 V	180 Ω (Cold chassis ground)
15 V	110 Ω (Cold chassis ground)

   (Model: H, I, J, K, L)

B+ Line	Minimum Resistance
115 V	1 kΩ (Cold chassis ground)
27 V	180 Ω (Cold chassis ground)
17 V	110 Ω (Cold chassis ground)

6. When the TV set is not used for a long period of time, unplug the power cord from the AC outlet.
7. Potentials, as high as 25.0 kV (Model: A, B, C, D, E, F, G) or 30.0 kV (Model: H, I, J, K, L) are present when this TV set is in operation. Operation of the TV set without the rear cover involves the danger of a shock hazard from the TV set power supply. Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment. Always discharge the anode of the picture tube to the CRT ground of receiver before handling the tube.
8. After servicing make the following leakage current checks to prevent the customer from being exposed to shock hazards.

LEAKAGE CURRENT COLD CHECK

1. Unplug the AC cord and connect a jumper between the two prongs on the plug.
2. For physically operated power switches, turn power on. Otherwise skip step 2.
3. Measure the resistance value, with an ohmmeter, between the jumpered AC plug and each exposed metallic cabinet part on the receiver, such as screwheads, connectors, etc. When the exposed metallic part has a return path to the chassis, the reading should be between 1 MΩ and 12 MΩ. When the exposed metal does not have a return path to the chassis, the reading must be infinity.

LEAKAGE CURRENT HOT CHECK

1. Plug the AC cord directly into the AC outlet.

   Do not use a isolation transformer for this check.
2. Connect a 1.5 kΩ, 10 W resistor, in parallel with a 0.15 µF capacitor, between each exposed metallic part on the set and a good earth ground , as shown in Figure 1.
3. Use an AC voltmeter, with 1 kΩ/V or more sensitivity, to measure the potential across the resistor.
4. Check each exposed metallic part, and measure the voltage at each point.
5. Reverse the AC plug in the AC outlet and repeat each of the above measurements.
6. The potential at any point should not exceed 0.75 V RMS.

   A leakage current tester (Simpson Model 229 equivalent) may be used to make the hot checks. Leakage current must not exceed 1/2 mA. In case a measurement is outside of the limits specified, there is a possibility of shock hazard, and the receiver should be repaired and rechecked before it is returned to the customer.

Hot-Check Circuit

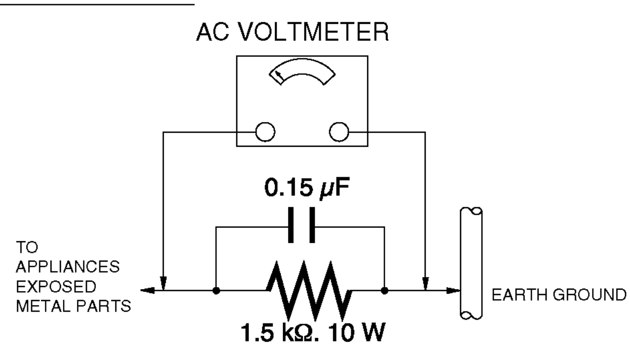


Figure 1

2 X-RADIATION

WARNING :

1. The potential source of X-Radiation in TV sets is the High Voltage section and the picture tube.
2. When using a picture tube test fixture for service, ensure that the fixture is capable of handling 25.0 kV (Model: A, B, C, D, E, F, G) or 30.0 kV (Model: H, I, J, K, L) without causing X-Radiation.

NOTE :

It is important to use an accurate periodically calibrated high voltage meter.

1. Reduce the brightness to minimum.
2. Set the SERVICE switch to SERVICE .
3. Measure the High Voltage. The meter reading should indicate 23.5 kV±1.5 kV (Model: A, B, C, D, E, F, G) or 28.5 kV±1.5 kV (Model: H, I, J, K, L).

   If the meter indication is out of tolerance, immediate service and correction is required to prevent the possibility of premature component failure.
4. To prevent an X-Radiation possibly, it is essential to use the specified picture tube.

HORIZONTAL OSCILLATOR DISABLE CIRCUIT TEST SERVICE WARNING :

The test must be made as a final check before set is returned to the customer.

CONFIRMATION OF X-RAY MOVEMENT

1. Turn off TV set.
2. Connect the circuit below between TP1209 and TP1208.

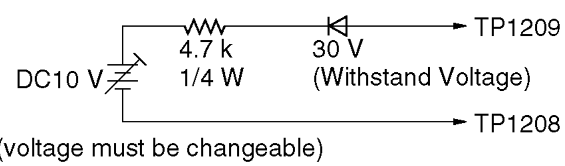


Figure 2

3. Turn on DC Power, and then turn on the set. Confirm that the picture is on the screen properly.
4. Confirm that the picture goes out of horizontal sync while getting down the voltage to DC Power.
5. If this does not occur even when getting down the voltage of DC Power to 0 V, it means that X-ray protect circuit is not operating.

   Further confirmation and repair is required.

REPAIR PROCEDURES OF HORIZONTAL OSCILLATOR DISABLE CIRCUIT

1. Connect a DC voltmeter between capacitor C513 (+) on the Main circuit board and chassis ground.
2. If approximately +21.9 V is not present at that point when 120 V AC is applied, find the cause. Check R503, R5505, C5507, C513 and D503.
3. Carefully check above specified parts and related circuits and parts. When the circuit is repaired, try the horizontal oscillator disable circuit test again.

CIRCUIT EXPLANATION

HORIZONTAL OSCILLATOR DISABLE CIRCUIT

The positive DC voltage, supplied from the D503 cathode for monitoring high voltage, is applied to the IC5301 Pin11 through R503 and R5504. Under normal conditions, the voltage at IC5301 Pin 11 is less than approx 3 V. If the high voltage at Flyback Tr Pin 5 exceeds the specified voltage, the positive DC voltage which is supplied from the D503 cathode also increases. The increased voltage is applied to IC5301 Pin11 through R503 and R5504. Due to the increased voltage at IC5301 Pin11, the horizontal oscillator frequency increases, the picture goes out of horizontal sync, the beam current decreases and the picture becomes dark in order to keep X-radiation under specification.

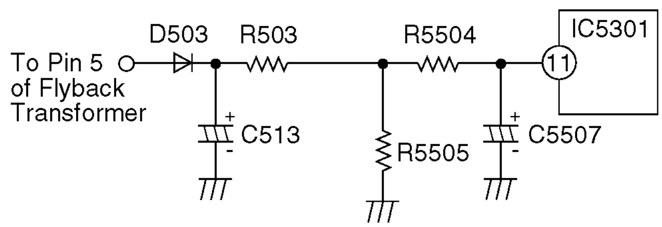


Figure 3

3 PREVENTION OF ELECTROSTATIC DISCHARGE (ESD) TO ELECTROSTATICALLY SENSITIVE (ES) DEVICES

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors are semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by electrostatic discharge (ESD).

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any ESD on your body touching a known earth ground. Alternatively, obtain and wear a commercially available discharging ESD wrist strap, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an antistatic solder removal device. Some solder removal devices not classified as "antistatic (ESD protected)" can generate electrical charge sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material).
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   CAUTION:

   Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity (ESD) sufficient to damage an ES device).

"NOTE to CATV system installer :

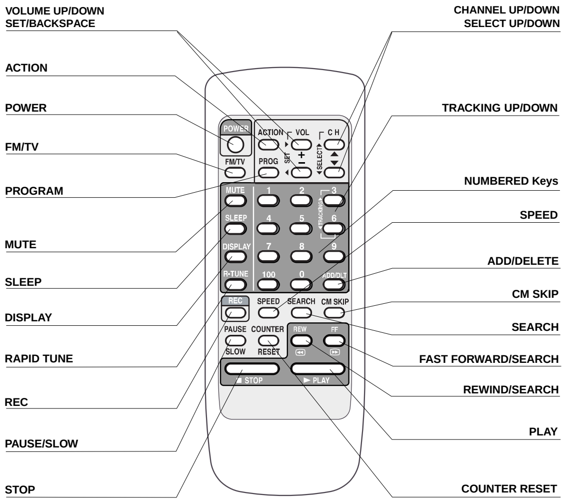
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical."

4 OPERATION GUIDE

Location of Controls

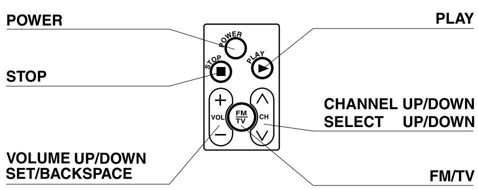
PVQ-1310/PV-C1320/PV-C1330W/PV-C1340/PV-C1350W

Remote Control Buttons



Kitchen (Easy-Find™) Remote Control <Model PV-C1350W only>

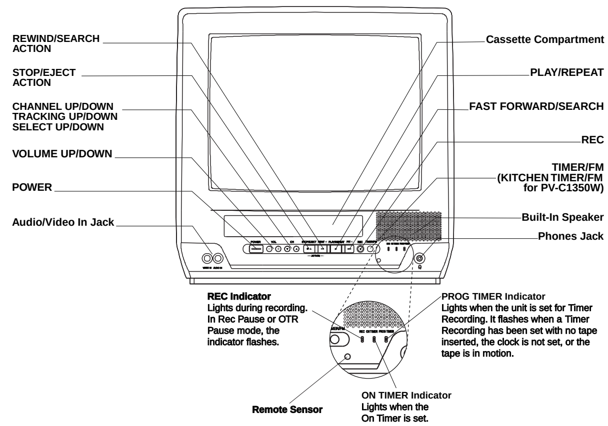
- This remote control has a magnet on the back so you can stick it to your refrigerator, etc. for convenience.
- The Kitchen remote control buttons work the same as the above remote control.



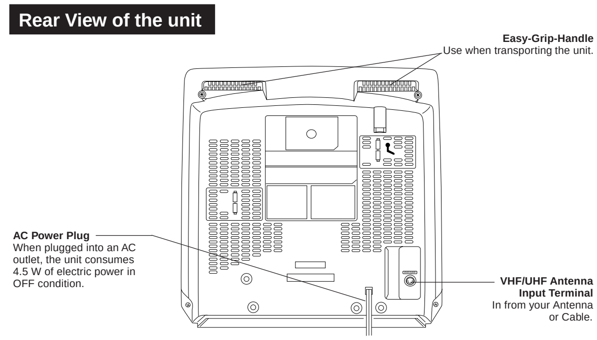
PVQ-1310/PV-C1320/PV-C1330W/PV-C1340/PV-C1350W

Front View of the unit and Indicators on the Front Panel

Models PV-C1320 / PV-C1330W / PV-C1340 unit is shown here.



Rear View of the unit



Location of Controls (continued)

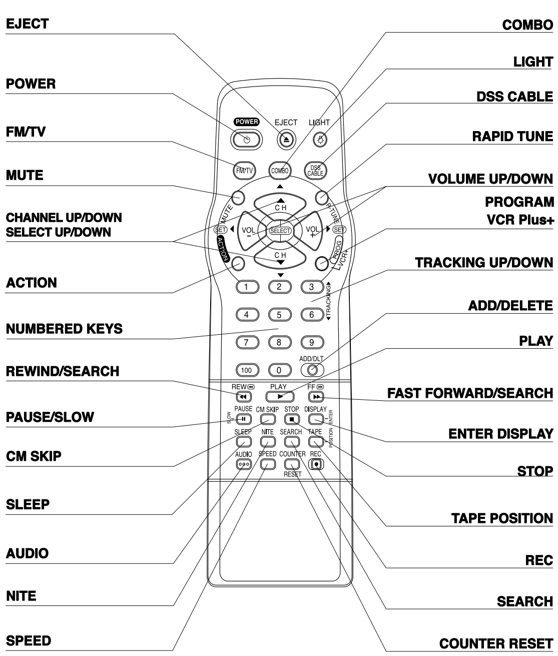
PV-C2020/PV-C2030W/PV-C2060

Remote Control Buttons

Light Tower™ Illuminated Remote Control

LIGHT button:
When the LIGHT button is pressed, the buttons which can be activated in the selected mode will light and the selected mode button (COMBO or DSS CABLE) will flash for 5 seconds. If no buttons are pressed within 5 seconds, the light will turn off in order to conserve battery power. Also, while holding down the buttons, the selected mode button will flash so you will be able to see, in the dark, which mode has been selected.

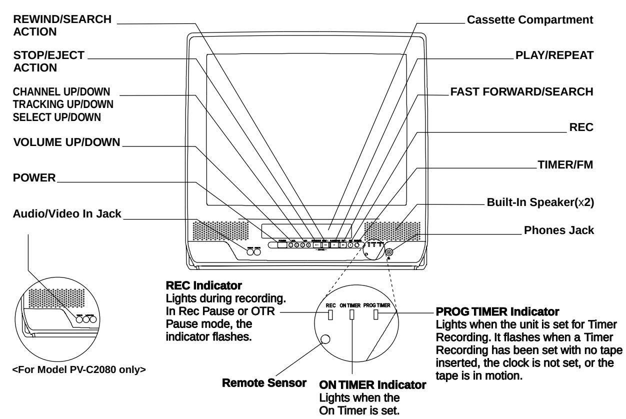
EJECT button:
When EJECT is pressed, the tape is ejected from Cassette Compartment.
If EJECT is pressed during recording, the unit will not respond to the command.



PV-C2010/PV-C2020/PV-C2030W/PV-C2060

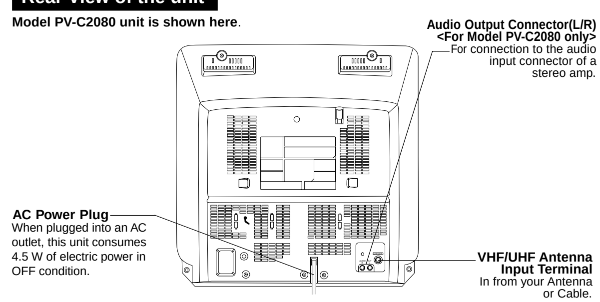
Front View of the unit and Indicators on the Front Panel

Model PV-C2060 unit is shown here.



Rear View of the unit

Model PV-C2080 unit is shown here.

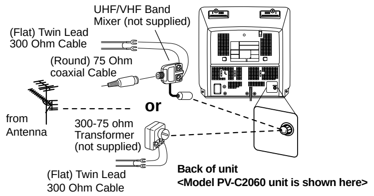


Connections

Outdoor Antenna Connection

Unhook the antenna from your previous TV or VCR and connect it to the back of the unit as shown in the diagram.
If your antenna system has separate UHF and VHF lead-ins, you need a UHF/VHF Band Mixer (not supplied.)

WARNING:
When using "Nut type" RF coaxial cables, tighten with fingers only. Overtightening may damage terminals.

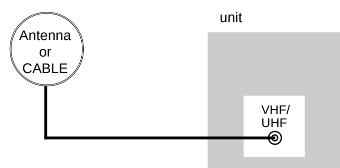


DSS/Cable box Connections

Without a Cable Box

You can;
- record or view unscrambled channels.

You cannot;
- record or view scrambled channels.
- view a channel other than the one selected for any type of recording.

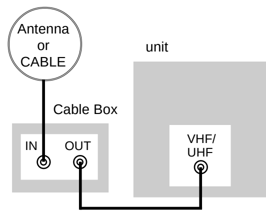


With a Cable Box

You can;
- record or view any channel including scrambled channels.
NOTE: Channel selection must be made at the cable box.

You cannot;
- view a channel other than the one selected for any type of recording.
- do a Timer recording of a channel unless you select it at the cable box.

Note to CABLE System Installer
This reminder is provided to call the CABLE (Cable TV) System Installers attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

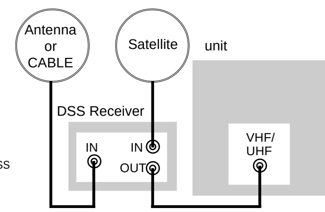


With a DSS Receiver

You can;
- record or view any channel including scrambled channels.
NOTE: Channel selection must be made at the DSS Receiver.

You cannot;
- view a channel other than the one selected for any type of recording.
- do a Timer recording of a channel unless you select it at the DSS box.

NOTE: The DSS receiver must be turned off to view programs from a cable box or antenna. See the DSS manual for details.



One Time Setup

When the unit is turned on the first time, setup mode is entered automatically.

Process of Setup
Language ⇨ channel ⇨ Clock

1 **Press POWER* on the remote or unit.**

2 **Select the language.**

SELECT LANGUAGE
PUSH CH ▲ :English
OPRIMIR CH ▼ :Espa ol
APP. VOL + :Fran ais

- CH ▲ for English
- CH ▼ for Spanish (Español)
- VOL + for French (Français)

- If wrong language is set, complete "Reset all unit Memory Functions" steps.
- If you use a cable box, it must be left on.

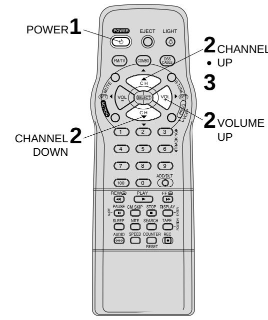
3 **Start Channel Auto Set and Clock Auto Set.**

CHANNEL/CLOCK AUTO SET
CONNECT ANTENNA CABLE AND IF YOU USE A CABLE BOX, TUNE IT TO YOUR LOCAL PBS CH THEN. . .
PLEASE PUSH CH UP KEY

Press CH ▲.

CH AUTO SET PROCEEDING

AUTO CLOCK SET PROCEEDING



Case 1 (Setup completed)

6/ 7/2000 WED 12:00PM
DST:ON
SETTING : CH 10
AUTO CLOCK SET
COMPLETED
END : PUSH CH UP KEY

Press CH ▲ to exit.
- If your area observes daylight saving time, but you would like to turn the DST feature off, complete the "To Set or Reset the Clock" step and set DST : OFF.

- If your area observes daylight saving time and DST is set to ON, but the time is incorrect; complete the Time Zone Adjust steps.

Case 2 (Setup incomplete)

AUTO CLOCK SET
IS INCOMPLETE
PUSH ACTION TO SET CLOCK

IMPORTANT NOTE FOR AUTO CLOCK SET
- Auto clock set is performed the first time when the unit is turned off each day. If used, a cable box must be left on and tuned to the PBS channel at the time the unit power is turned off if you want auto clock set to be done.
- If using a DSS receiver, it must be turned off for auto clock set.
- If a Cable Box or DSS receiver is connected to the unit via Audio/Video Jacks, an RF coaxial cable must also be connected for auto clock set and channel auto set features.
- If for any reason the time is changed manually, automatic time correction will not occur.

One Time Setup (continued)

Case 1 **Set TIME ZONE ADJUST.**

1 **Display MAIN MENU.**
Press ACTION.

2 **Display SET CLOCK screen.**

MAIN MENU
TV VCR LANGUAGE
CH CLOCK EXIT
SELECT :▲ ▼ ◀ ▶ KEY
SET :ACTION KEY

1) Press ▲▼◀▶ to select "CLOCK"
2) Press ACTION to display.

3 **Select TIME ZONE ADJUST.**

SET CLOCK
AUTO CLOCK SET
MANUAL
TIME ZONE ADJUST : 0
SELECT :▲ ▼ KEY
SET :◀ ▶ KEY
END :ACTION KEY

1) Press ▲▼ to select.
2) Press ◀▶ to subtract or add hour(s) as necessary.

4 **End setup.**
Press ACTION twice.
- TIME ZONE ADJUST returns to "0" if clock is set manually.

Case 2 **Clock Setup is Incomplete**
Set the clock manually.

a **Display SET CLOCK screen.**

AUTO CLOCK SET
IS INCOMPLETE
PUSH ACTION TO SET CLOCK

Press ACTION to exit this mode.

b **Set the clock manually.**

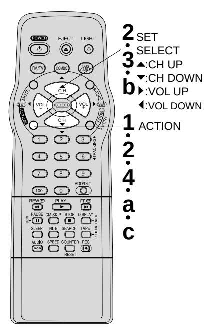
SET CLOCK
1/--/---- --:--
DST:ON
SELECT MONTH
SELECT :▲ ▼ KEY
SET :▶ KEY
END :ACTION KEY

1) Press ▲▼ to select the month.
2) Press ▶ to set.

Likewise set date, year, time, and DST (Daylight Saving Time.)

To Make Corrections, repeatedly press ◀▶ to move to error, then correct.

c **End setup.**
Press ACTION twice (Clock starts.)



Notes
- This unit's calendar is accurately maintained up to Dec. 31, 2089, 11:59 PM.
- Channel auto set selects normal TV or Cable channels depending on your unit hookup.

ACTION key on the unit

On Unit

You can operate the menu screen using unit buttons.
To display the menu, press STOP/EJECT and REW together with no tape inserted.
To exit the menu, repeat above with or without tape inserted.

Using ▲▼◀▶ keys

On Remote / On Unit

- ▲ : CH UP
- ▼ : CH DOWN
- ▶ : VOLUME UP
- ◀ : VOLUME DOWN

Whenever the menu or program screen is displayed, CHANNEL UP/DOWN function as ▲▼ and VOLUME UP/DOWN function as ◀▶ only.

MTS Broadcast/TV Stereo System

Receivable Broadcast Types

The following are possible broadcast types with their accompanying on-screen displays. The signal being received is indicated with an "🔈" mark while the selected audio mode is indicated with an arrow.
To change the audio mode for these broadcasts, follow the "Select Audio Mode for TV Viewing" section (below.)

Display the broadcast signal being received.
Press DISPLAY to display.

STOP 12:00AM ABC 0:00:00 SP
STEREO ←
SAP
MONO

MTS Stereo and SAP broadcast
Multi-channel Television Sound Stereo (main language) and Secondary Audio Program (sub language) broadcasts are both being received simultaneously. Select the STEREO or SAP audio mode.

STOP 12:00AM ABC 0:00:00 SP
STEREO ←
SAP
MONO

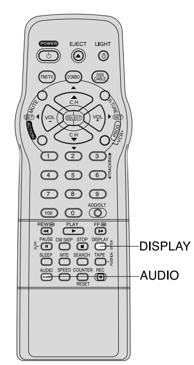
MTS Stereo broadcast
Multi-channel Television Sound Stereo broadcast. Select STEREO audio mode.
- If stereo broadcast is weak and the display flickers, select MONO audio mode for possibly better results.

STOP 12:00AM ABC 0:00:00 SP
STEREO
SAP ←
MONO

SAP broadcast
Secondary Audio Program (sub language.)
Select SAP audio mode for the sub language.

STOP 12:00AM ABC 0:00:00 SP
STEREO
SAP
MONO ←

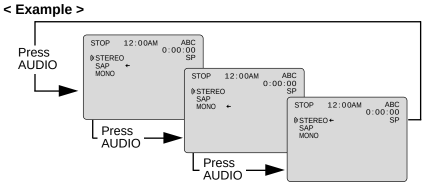
MONO broadcast
Normal monaural sound broadcast.



Select Audio Mode for TV Viewing

Press AUDIO to select the desired audio mode as described above.
(Arrow shows selection.)
- Each press of AUDIO will change the audio mode as shown below.
- "SAP" is selected with first press of AUDIO.

< Example >



IMPORTANT NOTE:
<For model PV-C2060 only>
This stereo system is designed for TV viewing only. Recording and playback will always be in monaural.

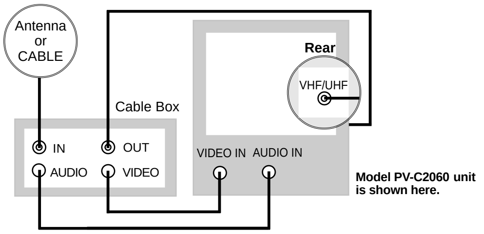
Timer Programming using VCR Plus+® System

VCR Plus+ System is...
a feature that allows you to set most items of a Timer Recording by simply entering a special code number (PlusCode) found in TV GUIDE and selected newspaper TV listings.

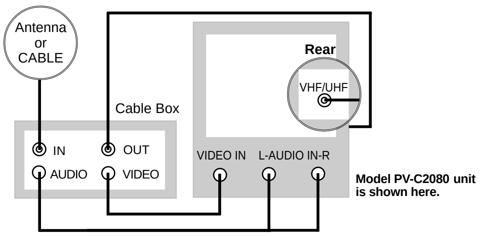
Process of Recording
Connection ⇨ Setup ⇨ Programming

Choose your connection type from the following diagrams

■ CABLE BOX ➔ UNIT

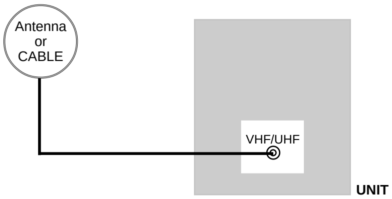


Model PV-C2060 unit is shown here.



Model PV-C2080 unit is shown here.

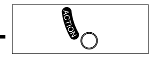
■ ANTENNA or CABLE ➔ UNIT



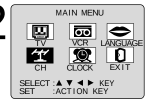
UNIT

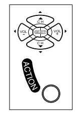
Cable Box Setup

Connection ⇨ **Setup** ⇨ Programming

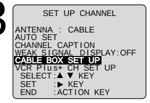
1 

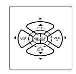
Display MAIN MENU.
Press ACTION*.

2 

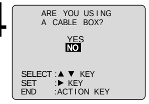


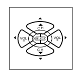
Display SET UP CH screen.
1) Press ▲▼◀▶ to select "CH."
2) Press ACTION to display.

3 



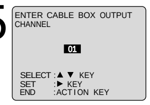
Select CABLE BOX SET UP.
1) Press ▲▼ to select.
2) Press ▶ to display.

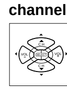
4 



Select "YES" or "NO."
1) Press ▲▼ to select "YES" or "NO."
2) Press ▶ to set.

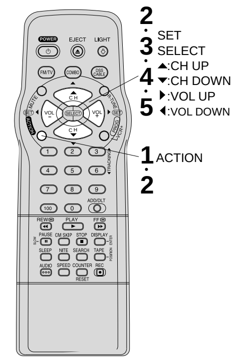
If you select...
- ■ **"YES" ➔ Step 5.**
- ■ **"NO" ➔ Press ACTION ➔ Go to VCR Plus+ Channel Setup.**

5 



Select Cable Box output channel number.
1) Press ▲▼ to select.
2) Press ▶ to enter.

- If necessary, refer to your cable box manual.
- If you are using Audio/Video jack connection for your cable box, select and set "VIDEO OUT" as the output channel.



2 SET
3 SELECT
4 ▲:CH UP
▼:CH DOWN
5 ▶:VOL UP
◀:VOL DOWN
1 ACTION
2

VCR Plus+® and PlusCode are registered trademarks of Gemstar Development Corporation. The VCR Plus+® system is manufactured under license from Gemstar Development Corporation.

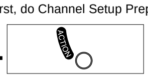
Timer Programming using VCR Plus+® System (continued)

VCR Plus+ Channel Setup is...
necessary to program the unit with local channel information for proper VCR Plus+ operation.

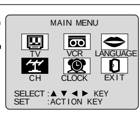
Process of Recording
Connection ⇨ **Setup** ⇨ Programming

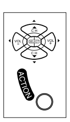
VCR Plus+ Channel Setup

At first, do Channel Setup Preparations below right.

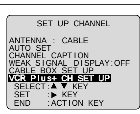
1 

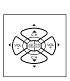
Display MAIN MENU.
Press ACTION*.

2 

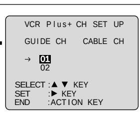


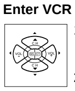
Display SET UP CH
1) Press ▲▼◀▶ to select "CH."
2) Press ACTION to display.

3 



Select VCR Plus+ CH
1) Press ▲▼ to select.
2) Press ▶ to display.

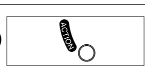
4 



Enter VCR Plus+ channels.
1) Press ▶ to move cursor to right column.
2) Press ▲▼ to change the CABLE CH number.
3) Press ◀ to set.
4) Press ▲▼ to scroll up/down the GUIDE CH column.

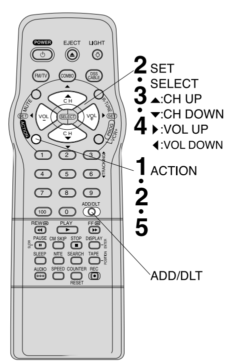
- Repeat step 4 until list is complete.

To Make Corrections
Press ▲▼ and ▶ to move to error, then ▲▼ to change, or ADD/DLT to erase number.

5 

End the setup.
Press ACTION three times.

Notes
- Make each entry within 5 minutes or the unit will leave this mode.
- Once local channels have been programmed, they will stay in memory, even in the case of a power failure.



2 SET
3 SELECT
4 ▲:CH UP
▼:CH DOWN
▶:VOL UP
◀:VOL DOWN
1 ACTION
2
5
ADD/DLT

Channel Setup Preparations

To complete step 4 left, make a local channel list (see example below.)
You will need the following:
- A normal TV and/or Cable stations line up and the channel numbers your receive them on.
- A list of Guide (VCR Plus+) channel numbers for stations you receive (see TV Guide and selected newspapers.)

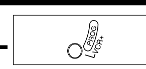
1 Make a 3-column chart. In the left column, write all station names you receive.
2 In the middle column, write each station s Guide (VCR Plus+) number.
3 In the right column, write the channel number your TV receives the station on.

< EXAMPLE ONLY >

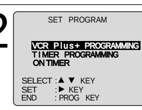
Broadcast or Cable Station Name	Assigned Guide (VCR Plus+) Channel no.	Channel no. your TV receives the station on
HBO	33	15
Nickelodeon	38	20
CBS	34	04
FOX	11	

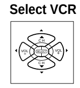
VCR Plus+ System Programming

Process of Recording
Connection ⇨ Setup ⇨ **Programming**

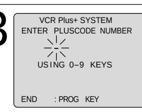
1 

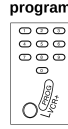
Display PROGRAM screen.
Press PROG/VCR+.

2 



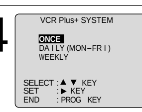
Select VCR Plus+ PROGRAM.
1) Press ▲▼ to select.
2) Press ▶ to display.

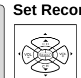
3 



Enter PlusCode programming number.
1) Press NUMBERED keys.
2) Press PROG/VCR+ when finished.

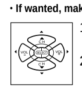
To Make Corrections
Press ◀ repeatedly to delete the PlusCode programming number.

4 



Set Record Frequency.
1) Press ▲▼ to select.
2) Press ▶ to set.

5 

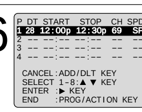


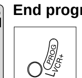
Set Category and Record speed.
- **If wanted, make a note.**

1) Press ▲▼ to select.
2) Press ▶ to set.

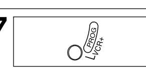
Select desired type:
- Categories ➔ N/A (not applicable), SPORTS, MOVIE, COMEDY MUSIC, or DRAMA
- Speed ➔ SP, LP, or SLP

To Make Corrections
Press ◀▶ to move the cursor and ▲▼ to make the correction.

6 



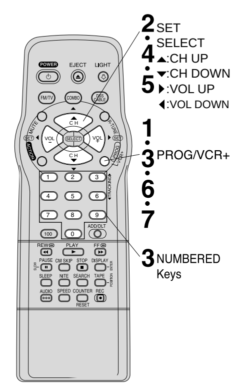
End programming.
Press PROG/VCR+ (or ACTION.)

7 

Exit this mode.
Press PROG/VCR+ (or ACTION) twice.

- PROG TIMER indicator lights on the unit.

☑ **Check list before you begin.**
☐ The clock is set to correct time.
☐ VCR Plus+ System Setup is complete.



2 SET
4 SELECT
▲:CH UP
▼:CH DOWN
5 ▶:VOL UP
◀:VOL DOWN
1
3 PROG/VCR+
6
7
3 NUMBERED Keys

Use normal Timer Recording steps if:
- a program PlusCode programming number is not listed.
- program, such as a sporting event, may run over scheduled stop time.

Notes
- You can obtain unlisted PlusCode programming numbers by calling 1-900-454-7587. Call costs approximately $.95 per minute.
- Avoid overlapping program times.
- If you re using a cable box, make sure that it is turned to the desired channel and the power is left on for timer recording.
- Timer programs memory capacity is 8. To add more programs, please first clear other programs.

Special VCR Features

Preset Caption

1 **Display MAIN MENU.**
Press ACTION*.

2 **Display SET UP CH screen.**

MAIN MENU
TV VCR LANGUAGE
CH CLOCK EXIT
SELECT : ▲ ▼ ◀ ▶ KEY
SET : ACTION KEY

1) Press ▲▼◀▶ to select "CH."
2) Press ACTION to display.

3 **Select CHANNEL CAPTION.**

SET UP CHANNEL
ANTENNA : CABLE
AUTO SET
CHANNEL CAPTION
WEAK SIGNAL DISPLAY:OFF
CABLE BOX SET UP
VCR Plus+ CH SET UP
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to display.

4 **Select PRESET CAPTION.**

CHANNEL CAPTION
PRESET CAPTION
MANUAL CAPTION
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to display.
• To create your own captions, go to "Manual Caption".

5 **Go with preset captions.**

PRESET CAPTION

ABC	--	PBS	--
CBS	--	CNN	--
FOX	--	ESPN	--
NBC	--	HBO	--

SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : ACTION KEY

PRESET CAPTION

TNT	42	CBC	62
UPN	--	CTV	21
WB	35	TSN	52
DSC	--	GLOB	123

CLEAR : ADD/DLT KEY
SELECT : ▲ ▼ KEY
SET : ◀ KEY
END : ACTION KEY

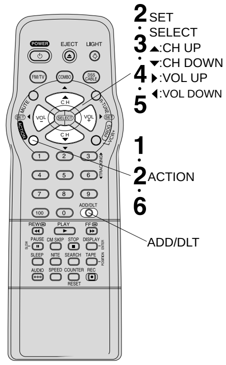
1) Press ▲▼ to select a station.
2) Press ▶ to move cursor to the right.
3) Press ▲▼ to select channel number.
4) Press ◀ to set.
• Repeat step 5 until the Caption List is complete.

To Make Corrections
Press ▲▼, then ▶ to select channel number.
Press ▲▼ to change, or ADD/DLT to delete.

6 **End setup.**
Press ACTION four times.

Channel Caption is ...
Station names, e.g. ABC, TNT, etc. so that they will appear when a channel is selected. Choose 24 preset names (Preset Caption), or make up to 10 names of your own (Manual Caption.)

Check list before you begin.
☐ You need a list of stations and the channel numbers you receive them on.



Manual Caption

1 **Do "Preset Caption" steps 1~3.**

2 **Select MANUAL CAPTION.**

CHANNEL CAPTION
PRESET CAPTION
MANUAL CAPTION
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to display.

3 **Select Channel number.**

MANUAL CAPTION
CH NUMBER CAPTION
02 A---
CLEAR : ADD/DLT KEY
SELECT : ▲ ▼ KEY
SET : ◀ ▶ KEY
END : ACTION KEY

1) Press ▲▼ to select CH NUMBER.
2) Press ▶ to move cursor to the right.
• Channels already set and channels deleted from Channel Memory are not displayed.
• You can set a total of ten channel captions with up to four characters each.

4 **Enter your caption.**

MANUAL CAPTION
CH NUMBER CAPTION
02 A---
CLEAR : ADD/DLT KEY
SELECT : ▲ ▼ KEY
SET : ◀ ▶ KEY
END : ACTION KEY

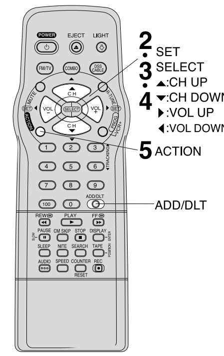
1) Press ▲▼ to select.
2) Press ▶ to enter.
• Characters change in the following order.

A — B — C ······ Z — BLANK — — — & —
9 ······ 2 — 1 — 0 — / — !

• Press ◀ repeatedly to move the cursor to "CH NUMBER." Repeat steps 3 and 4 as desired.

To Make Corrections
Press ▲▼, then ▶ to select channel number.
Press ▲▼ to change, or ADD/DLT to delete.

5 **End setup.**
Press ACTION four times.



Special VCR Features (continued)

Time Stamp Feature

This unit writes program data (see example below) for about the first 10 seconds of every recording.
The information is then displayed the first 10 seconds of playback. To change the data, see "Changing Time Stamp Data" section.

1 **Display MAIN MENU.**
Press ACTION*.

2 **Display SET UP VCR screen.**

MAIN MENU
TV VCR LANGUAGE
CH CLOCK EXIT
SELECT : ▲ ▼ ◀ ▶ KEY
SET : ACTION KEY

1) Press ▲▼◀▶ to select "VCR."
2) Press ACTION to display.

3 **Select TIME STAMP.**

SET UP VCR
REPEAT PLAY : OFF
TIMER PROGRAMMING
TIME STAMP : ON
REMOTE WARNING : ON
SELECT : ▲ ▼ KEY
SET : ▶ KEY
END : ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set "ON" or "OFF."
• When "OFF" is selected, the program data is written on the tape, but will not be displayed.

4 **Return to normal screen.**
Press ACTION twice.

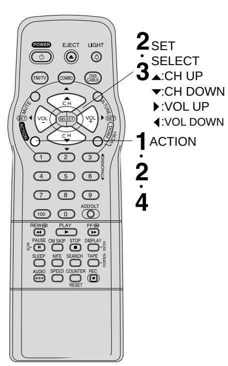
<Time Stamp Example>

Normal/ One Touch Recording
12/28/1999 TUE
12:00PM
CH 08 ABC

Timer Recording
12/27/1999 MON
12:00PM - 1:00PM
CH 08 ABC MOVIE
MEMORIAL MOVIE

When Clock is not set...
/ /
:
CH 08 ABC

Check list before you begin.
☐ The clock is set to correct time.
☐ The record tab is in place.



Changing Time Stamp Data

You may change the time stamp data (Date, Time, Channel, Category, and Notes) as desired.

1 **Display Time Stamp Data.**
1) Insert cassette with record tab.
2) Press PLAY.

2 **Display TIME STAMP EDIT.**

12/27/1999 MON
12:00PM - 1:00PM
CH 08 ABC MOVIE
MEMORIAL MOVIE

Press PROG/VCR+ while the data is displayed in playback mode.

3 **Change Time Stamp Data.**

TIME STAMP EDIT
DATE : 12/27/1999 MON
TIME : 12:00PM - 1:00PM
CH : 08 ABC
CATEGORY : MOVIE
NOTES: MEMORIAL MOVIE----
SELECT : ▲ ▼ KEY
SET : ◀ ▶ KEY
END : PROG KEY

1) Press ▲▼ to select.
2) Press ▶ or ◀ to enter and continue.
• Characters in NOTES will change in the following order.

A — B — C ······ Z — BLANK — — — & —
9 ······ 2 — 1 — 0 — / — !

3) Repeat 1) and 2) as needed.

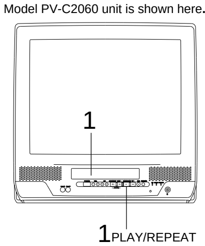
To Make Corrections
Press ◀ ▶ to move to the incorrect entry, then press ▲▼ to make the correction.

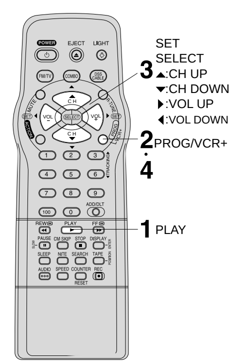
4 **Write the new data.**

NOW WRITING TIME STAMP

Press PROG/VCR+.
• After the data is written, the unit automatically goes into Stop mode.
• You cannot use POWER or REC button while "NOW WRITING TIME STAMP" is displayed.

Model PV-C2060 unit is shown here.





Special VCR Features (continued)

Weak Signal Display ON/OFF

When "ON" is selected, picture is displayed even when broadcast signal is weak or nonexistent.

1 **Display MAIN MENU.** Press ACTION*.

2 **Display SET UP CH screen.**

MAIN MENU: TV, VCR, LANGUAGE, CH, CLOCK, EXIT. SELECT: ▲ ▼ ◀ ▶ KEY; SET: ACTION KEY

1) Press ▲▼◀▶ to select "CH."
2) Press ACTION to display.

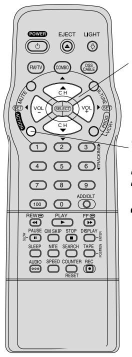
3 **Select WEAK SIGNAL DISPLAY.**

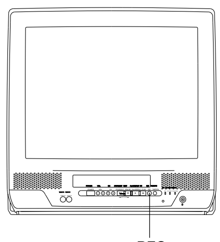
SET UP CHANNEL: ANTENNA : CABLE; AUTO SET; CHANNEL CAPTION; WEAK SIGNAL DISPLAY:OFF; CABLE BOX SET UP; VCR Plus+ CH SET UP; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set "ON" or "OFF."

Notes
- "ON" = Picture is displayed regardless of signal condition, and may not always be clearly visible.
  "OFF" = Screen turns solid blue when signal is absent or weak.
- If unit is connected to equipment which has blue back feature, selecting "ON" will have no effect on the other equipment.

4 **Return to the normal screen.** Press ACTION twice.





Model PV-C2060 unit is shown here.

VCR Lock

All operations are prohibited except Timer recording and tape eject. Useful for families with small children.

VCR LOCK ACTIVATED

VCR LOCK OFF

To turn "ON." In stop mode, hold down REC on the unit without a cassette inserted for 7 seconds.

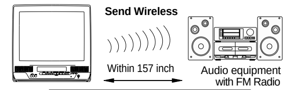
To turn "OFF." Repeat above with or without cassette.

- VCR Lock is canceled automatically after about 24 hours if clock is set.

FM Transmitter

FM Transmitter is ...
a feature whereby this unit s sound signal can be heard on your FM Radio. First, tune your radio to a frequency (93 ~ 97, 99 ~ 103 MHz) that is not being broadcast on by a radio station. Then, set this unit to the same carry frequency (see below.) Now, fine-tune your radio so the sound comes in clearly.

<For Model PV-C2080 only>



FM Transmitter Carry Frequency Setup

1 **Display MAIN MENU.** Press ACTION*.

2 **Display SET UP TV screen.**

1) Press ▲▼◀▶ to select "TV".
2) Press ACTION to display.

3 **Select SET UP FM.**

SET UP TV: LOCK; CAPTION; INPUT SELECT : TUNER; VIDEO ADJUST; SET UP FM; SPEAKER : ON; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to display.

4 **Select SET UP FM TRANSMITTER.**

SET UP FM: FM ANTENNA : INT; FM TRANSMITTER : ON; SET UP FM TRANSMITTER; SPKR W/FM TRANS : OFF; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to display.

- When step 4 is done, FM TRANSMITTER is automatically set to "ON."

5 **Set the Carry Frequency.**

SET UP FM TRANSMITTER: 93MHz – 97MHz; 99MHz – 103MHz; 93MHz ... 97MHz; SELECT: ▲ ▼ KEY; SET: ◀ ▶ KEY; END: ACTION KEY

SET UP FM TRANSMITTER: 93MHz – 97MHz; 99MHz – 103MHz; 99MHz ... 103MHz; SELECT: ▲ ▼ KEY; SET: ◀ ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select the desired frequency range. (93-97 or 99-103MHz)
2) Press ◀▶ to select the Carry Frequency.
3) Press ACTION to set. (Then screen in step 4 is redisplayed.)

- The selector bar returns to center position when frequency range is switched.

To Make Corrections, select frequency with CH ▲▼◀▶, then repeat step **5**.

6 **End setup** Press ACTION three times.

FM Transmitter ON/OFF

1 **Do "FM Transmitter Carry Frequency" steps 1~3. (See left.)**

2 **Select SET UP FM TRANSMITTER.**

SET UP FM: FM ANTENNA : INT; FM TRANSMITTER : ON; SET UP FM TRANSMITTER; SPKR W/FM TRANS : OFF; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set "ON" or "OFF."

3 **End setup** Press ACTION three times.

Speaker with FM Transmitter ON/OFF

1 **Do "FM Transmitter Carry Frequency" steps 1~3. (See left.)**

2 **Select Speaker with Transmitter.**

SET UP FM: FM ANTENNA : INT; FM TRANSMITTER : ON; SET UP FM TRANSMITTER; SPKR W/FM TRANS : ON; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set "ON" or "OFF."

If you select...
- **"ON"** ➔ Internal Speaker ON with Transmitter
- **"OFF"** ➔ Internal Speaker MUTE with Transmitter

Notes
- This operation has effect only when "FM TRANSMITTER : ON" (see above.)
- If "SPKR W/FM TRANS : OFF", the MUTE and VOLUME key will not function.

3 **End setup** Press ACTION three times.

Notes
- The Carry Frequency shown by the selector bar is a guide only. Please listen to the sound and adjust accordingly.
- The unit will transmit sound when unit power is on and "FM TRANSMITTER : ON" is selected.
- When unit power is turned off, "FM TRANSMITTER" returns to "OFF" setting.
- Please put your FM Radio within 157 inch of the unit.
- Interference occurs when you select CATV channels 95, 96, or 97, while FM Transmitter is operating.
- FM Transmitter will not work in FM Radio Mode.

V-Chip Control Feature

V-Chip Feature is...
This unit has built-in V-Chip Control which allows you to block unwanted TV usage based on US MOVIES and US TV PROGRAMS ratings.

Process of V-Chip Feature
Enter Code ⇨ Setup ⇨ Blocking

Enter Secret Code

A 4-digit code must be entered to view a blocked program or change rating settings.

1 **Display MAIN MENU.** Press ACTION*.

2 **Display SET UP TV screen.**

1) Press ▲▼◀▶ to select "TV."
2) Press ACTION to display.

3 **Select Lock.**

SET UP TV: LOCK; CAPTION; INPUT SELECT : TUNER; VIDEO ADJUST; FM ANTENNA : INT; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

<For model PV-C2060 only>

1) Press ▲▼ to select.
2) Press ▶ to display.

4 **Enter your secret code.**

LOCK: ENTER 4-DIGIT CODE; -‐‐‐; SELECT: ▲ ▼ KEY; END: ACTION KEY

1) Press ▲▼ to select a number.
2) Press ▶ (or ◀) to set.

- Repeat step 4 until all 4-digits are entered.
- Take care that you are not observed entering the secret code.

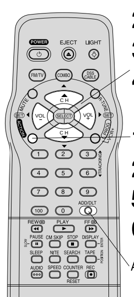
To Make Corrections
Press ◀▶ to move the cursor and ▲▼ to make the correction.

5 **Save 4-DIGIT CODE.**

LOCK: RECOGNIZED; CHANGE CODE: ADD/DLT KEY; CONTINUE: ACTION KEY

Press ACTION.

6 **Display LOCK menu for rating screen.**
Press ACTION.
Or,
to exit, press ACTION four times.



Changing your secret code
- You will need your current code.

Do steps 1~4. In step 5, press ADD/DLT to clear current code. Repeat steps 4 and 5 to enter new code.

Notes
- DO NOT forget your secret code.
- Once rating are set, restricted tapes or programs cannot be accessed unless the secret code is entered.

Setup US MOVIES Ratings

Process of V-Chip Control Feature
Enter Code ⇨ **Setup** ⇨ Blocking

If LOCK menu is not displayed, do "Enter Secret Code" steps.

1 **Select US MOVIES STATUS.**

LOCK: US MOVIES : OFF; CHANGE SETTINGS; US TV PROGRAMS : OFF; CHANGE SETTINGS; NEXT PAGE; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set "ON" or "OFF."

If you select US MOVIES STATUS:
- **"ON" ➔ V-Chip Control is activated.**
- **"OFF" ➔ V-Chip Control is deactivated.**

2 **Select CHANGE SETTINGS.**

LOCK: US MOVIES : OFF; CHANGE SETTINGS; US TV PROGRAMS : OFF; CHANGE SETTINGS; NEXT PAGE; SELECT: ▲ ▼ KEY; SET: ▶ KEY; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to display.

3 **Select VIEW NR PROGRAMS?**

VIEW NR PROGRAMS? : YES; G UNLOCKED; PG; PG-13; R; NC-17; X; CONTAINS NO RATING; SELECT: ▲ ▼ SET: ▶; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set "YES" or "NO."

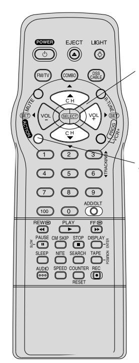
NR (Not Rated) PROGRAMS
Some movies, such as old movies or foreign movies usually have no ratings.

4 **Select ratings to be blocked. (See right.)**

VIEW NR PROGRAMS? : YES; G UNLOCKED; PG; PG-13; R; NC-17; X; GENERAL AUDIENCE; SELECT: ▲ ▼ SET: ▶; END: ACTION KEY

1) Press ▲▼ to select.
2) Press ▶ to set.

5 **Redisplay LOCK menu to continue setup.**
Press ACTION
Or,
to exit, press ACTION four times.



US MOVIES RATINGS

G	GENERAL AUDIENCE: All ages admitted.
PG	PARENTAL GUIDANCE: Some material may not be suitable for children.
PG-13	PARENTS CAUTIONED: Some material may be inappropriate for children under 13.
R	RESTRICTED: Children under 17 must be accompanied by a parent or adult.
NC-17	OVER AGE 17 ONLY: No one 17 and under admitted.
X	ADULTS ONLY:

V-Chip Control Feature (continued)

Setup US TV PROGRAMS Ratings

If LOCK menu is not displayed, do "Enter Secret Code" steps.

Process of V-Chip Control Feature: Enter Code ⇨ **Setup** ⇨ Blocking

1 LOCK
US MOVIES :OFF
CHANGE SETTINGS
US TV PROGRAMS :OFF
CHANGE SETTINGS
NEXT PAGE
SELECT :▲▼ KEY
SET :▶ KEY
END :ACTION KEY

Select US TV PROGRAMS STATUS.

1) Press ▲▼* to select.
2) Press ▶ to set "ON" or "OFF."

If you select US TV PROGRAMS STATUS:
- **"ON" ➔ V-Chip Control is activated.**
- **"OFF" ➔ V-Chip Control is deactivated.**

2 LOCK
US MOVIES :OFF
CHANGE SETTINGS
US TV PROGRAMS :OFF
CHANGE SETTINGS
NEXT PAGE
SELECT :▲▼ KEY
SET :▶ KEY
END :ACTION KEY

Select CHANGE SETTINGS.

1) Press ▲▼ to select.
2) Press ▶ to display.

3 VIEW NR PROGRAMS? : YES
TV-Y UNLOCKED
TV-Y7 FV
TV-G
TV-PG V S L D
TV-14 V S L D
TV-MA V S L
CONTAINS NO RATING
SELECT :▲▼ SET :▶
END :ACTION KEY

Select VIEW NR PROGRAMS?

1) Press ▲▼ to select.
2) Press ▶ to set "YES" or "NO."

NR (Not Rated) PROGRAMS
Some TV shows, such as news, sports, weather, bulletins, emergency information usually have no ratings.

4 VIEW NR PROGRAMS? : YES
TV-Y UNLOCKED
TV-Y7 FV
TV-G
TV-PG V S L D
TV-14 V S L D
TV-MA V S L
FOR ALL CHILDREN
SELECT :▲▼ SET :▶
END :ACTION KEY

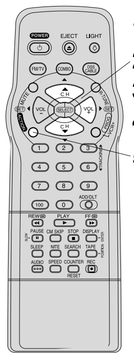
Select ratings to be blocked.

1) Repeatedly Press ▲▼ to select.
2) Press ▶ to set.

- Ratings which are highlighted in Green will be blocked, when not highlighted (white letters), these will not be blocked.

Note
You may select from standard TV ratings (chart 1), or customize to a specific content rating (chart 2.)

5 **Exit this mode.**
Press ACTION four times.



US TV PROGRAMS RATINGS: Chart 1

TV-Y	FOR ALL CHILDREN: Content specifically geared to young viewers ages 2-6.
TV-Y7	FOR AGE 7 AND OLDER: May contain mild physical or comedic violence which may frighten children under 7.
TV-G	GENERAL AUDIENCE: Contains little or no violence, strong language, or sexual dialogue or situations.
TV-PG	PARENTAL GUIDANCE: May contain infrequent coarse language, limited violence, some suggestive sexual dialogue and situations.
TV-14	PARENTS CAUTIONED: May contain sophisticated themes, sexual situations, strong language, and more intense violence.
TV-MA	MATURE AUDIENCE: May contain mature themes, profane language, graphic violence, and sexual situations.

US TV PROGRAMS RATINGS: Char2

FV	Fantasy Violence
V	Violence
S	Sexual Situations
L	Adult Language
D	Sexually Suggestive Dialogue

Process of V-Chip Control Feature: Enter Code ⇨ Setup ⇨ **Blocking**

Blocking Message

<When V-Chip Control is activated>

ABC
PROGRAM RATING EXCEEDED
RATING:PG-13

- If V-Chip Control is activated, and a program or movie exceeds the ratings you have set, a message will appear on a black background and sound is muted.

STOP 11:00AM ABC
0:12:34
SP
RATING:PG-13

- If DISPLAY is pressed, even when V-Chip control is deactivated, rating is displayed on-screen.

Audio Features

<For Model PV-C2080 only>

Select Audio Mode for Playback

Choose the type of sound track for playback.

1 **Playback the tape.**
See the "Playback a Tape" section.

2 HIFI (L/R) ←
HIFI (L)
HIFI (R)
NORMAL

- This screen appears when you press AUDIO during playback.

Select desired mode.

AUDIO
Press AUDIO repeatedly (each press within 5 seconds.)

- Please select "**HIFI** (L/R)", "**HIFI** (L)" or "**HIFI** (R)" to listen to stereo recordings in stereo sound. Select "NORMAL" for monaural sound.

With the proper audio mode setting, your unit can:
- record and playback MTS stereo broadcast (main language) in stereo Hi-Fi. Stereo sound is recorded on the left and right audio tracks and on the video portion of a tape.
- record and playback a monaural broadcast (main language) or SAP (Secondary Audio Program, usually in a second language) on the Hi-Fi tracks for better quality monaural sound.
- playback non-Hi-Fi tapes in monaural.

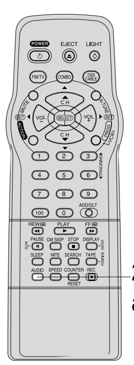
Select Audio Mode for Recording

Choose the type of broadcast to be recorded.

a AUDIO
Select Audio Mode for Recording a Do Select Audio Mode for TV Viewing steps.
Press AUDIO.

- Recording will always be made in the audio mode selected in the "Select Audio Mode for TV Viewing" section.

b **Do a recording.**
See the "Record On a Tape" section.



Notes
- When purchasing or renting prerecorded tapes, remember that only those recorded in Hi-Fi stereo will playback with true stereo sound. Standard stereo tapes will playback with monaural sound.
- To listen to the superior sound of Hi-Fi stereo playback, the unit AUDIO (L/R) jacks must be connected to a stereo amp and speakers.
- There may be a difference in audio level between Hi-Fi and normal audio playback.

<For Model PV-C2080 only>

Speaker ON/OFF System

Allows you to turn off the speaker of the unit when it is connected to external audio equipment.

1 **Display MAIN MENU.**
Press ACTION*.

2 MAIN MENU
TV VCR LANGUAGE
CH CLOCK EXIT
SELECT :▲▼◀▶ KEY
SET :ACTION KEY

Display SET UP TV screen.

1) Press ▲▼◀▶ to select "TV."
2) Press ACTION to display.

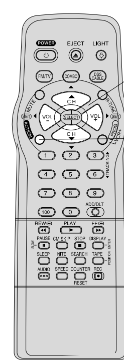
3 SET UP TV
LOCK
CAPTION
INPUT SELECT :TUNER
VIDEO ADJUST
FM ANTENNA :INT
SPEAKER :ON
SELECT :▲▼ KEY
SET :▶ KEY
END :ACTION KEY

Select SPEAKER.

1) Press ▲▼ to select.
2) Press ▶ to set "ON" or "OFF."

- In SPEAKER OFF condition, the MUTE button and VOL + - do not function.

4 **End setup.**
Press ACTION twice.



Equipped with dbx® -TV Noise Reduction for true MTS reproduction. dbx® -TV Noise Reduction is required for good stereo separation and audio fidelity. dbx® is a registered trademark, and is licensed by dbx® Technology Licensing.

5 SERVICE NOTES (PLEASE READ)

5.1. SERVICE NOTES

5.1.1. SIMPLIFIED FAULT FINDING DATA

Simplified Self-Diagnostic System facilitates finding the cause of the fault. A 4 digit for fault code and communication for I2C bus code will be displayed on TV screen.

The Simplified Fault finding data is stored in the Memory IC (IC6004). This data is cleared after it is displayed, and then the POWER button is pressed back on.

1. With power turned off, press FF and REW buttons on unit together for over 3 seconds.

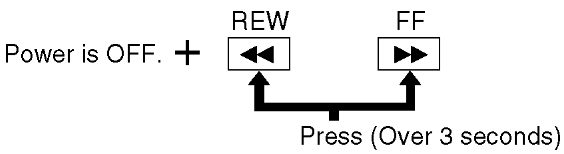


Fig. 1-1

2. TV power goes on and the unit goes into service mode.

   4 digit for fault code and communication for I2C bus code will be displayed.

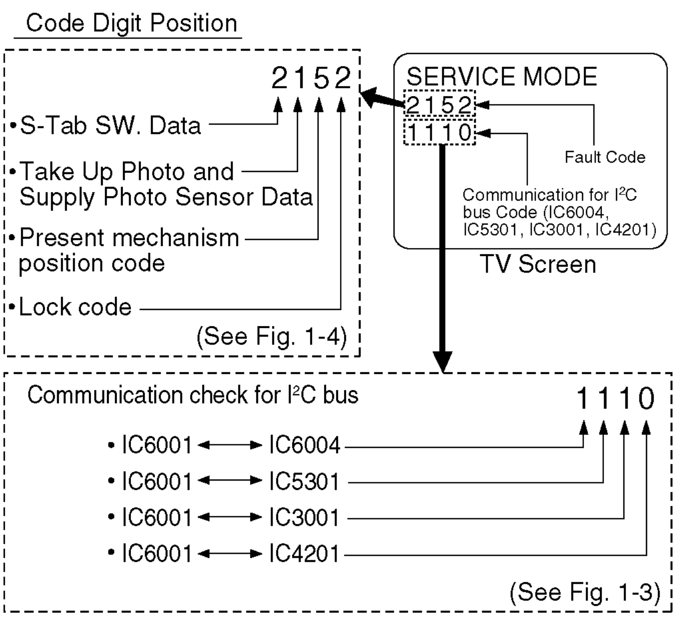


Fig. 1-2

(Communication check for I²C bus)

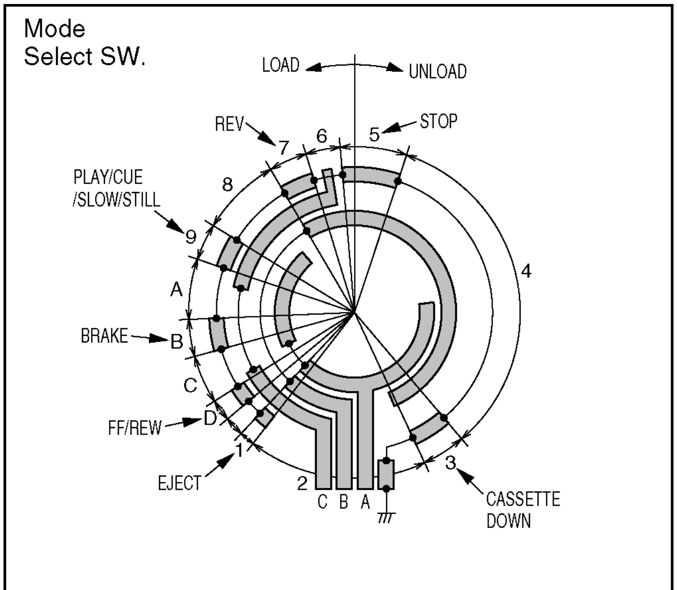
Explanation of Codes	Code No.			
Communication check for I²C bus (IC6001↔IC6004) ----- **NG** **OK**	0 1			
Communication check for I²C bus (IC6001↔IC5301) ----- **NG** **OK**		0 1		
Communication check for I²C bus (IC6001↔IC3001) ----- **NG** **OK**			0 1	
Communication check for I²C bus (IC6001↔IC4201) ----- **NG** **OK** **Note:** For Normal Audio models, only "0" will be displayed as code No. because IC4201 (Hi-Fi Audio IC) is not used.				0 1

Fig. 1-3

(Fault Code)

Explanation of Codes	Code No.			
S-Tab SW. Data • S-Tab SW. is off. • S-Tab SW. is on.	1 2			
Take Up and Supply Photo Sensor Data • No light detected at either sensor. • Take Up Photo Sensor detected at beginning of tape. • Supply Photo Sensor detected at end of tape. • Light detected at both sensors.		1 2 3 4		
Present Mechanism Position Code Mechanism Position is indicated. (Refer to Fig. 1-5.)			1 2 3 4 5 6 7 8 9 A B C D	
Lock Code (See Note) • VCR is not in shut-off condition. • Reel lock. • Cylinder lock. • Exceeds loading/unloading time. (Mechanism Lock) • Exceeds Cassette loading/unloading time. (Cassette Lock) Tape Unloading (direction) Tape Loading (direction)			1 2	0 1 2 3 4 4

Fig. 1-4



Mechanism position	EJECT		CASSETTE DOWN		STOP		REV		PLAY/CUE/ SLOW/STILL		BRAKE		FF/REW
position code	1	2	3	4	5	6	7	8	9	A	B	C	D

Fig. 1-5

3. Press any operation button except for POWER on either the unit, or the remote to detect that a key has been pressed. The 1st digit changes to "0" only when key is detected.

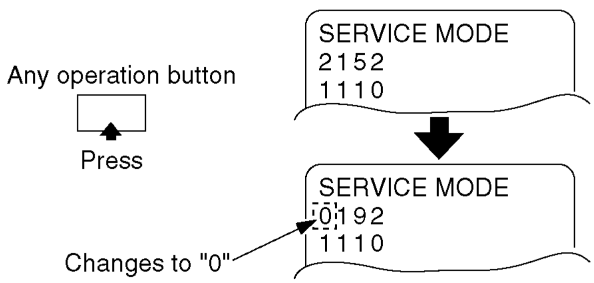


Fig. 1-6

Note:

When 1 to 4 listed in Lock code occurs, the VCR stops and all VCR function buttons except for power become non-operational.

5.1.2. SERVICE POSITION

5.1.2.1. Service Position

Service Position	Purpose
Service Position (1)	Mechanism check Mechanical adjustment Electrical adjustment
Service Position (2)	TV/VCR Main C.B.A. check

CAUTION:

HOT CIRCUIT(Primary circuit) exists on the TV/VCR Main C.B.A. Use extreme care to prevent accidental shock when servicing.

5.1.2.1.1. Service Position (1)

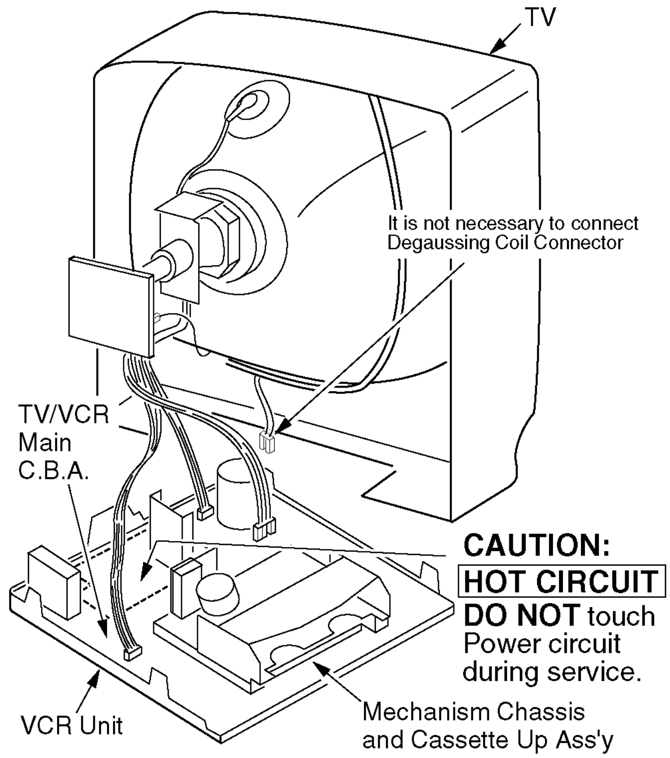


Fig. 2-1

5.1.2.1.2. Service Position (2)

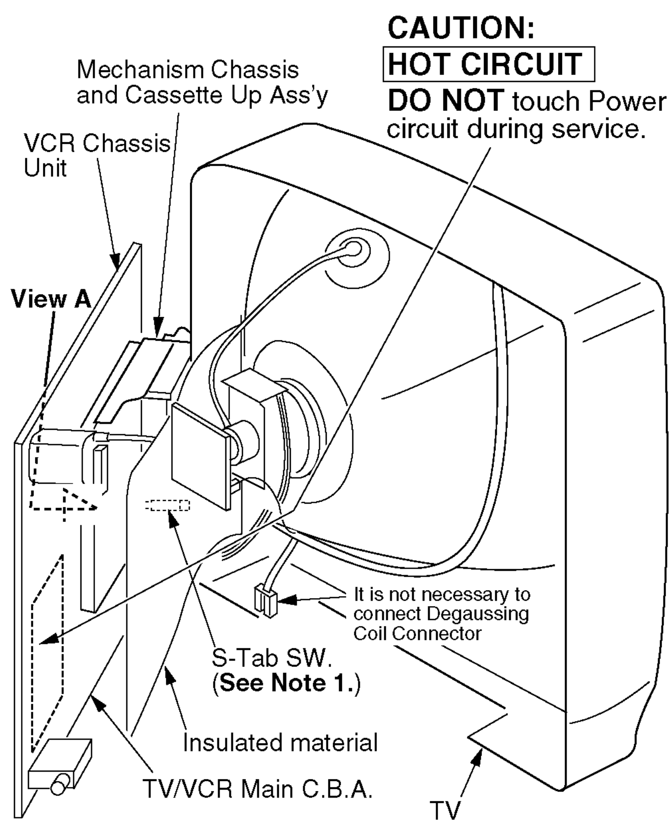
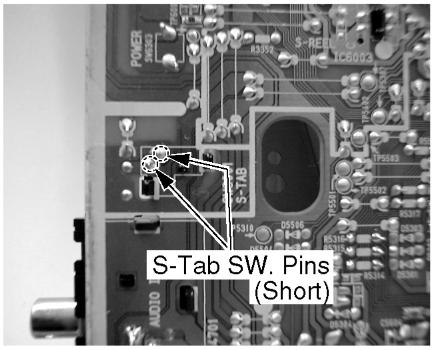


Fig. 2-2

Note:

1. When recording in Service Position (2), short the S-Tab SW. Pins on foil side of TV/VCR Main C.B.A. to turn this SW. on.



TVVCR Main C.B.A. (foil side)

View A

Alternative method:
Cover the S-Tab SW. with masking tape.

Fig. 2-3

2. When disassembling/assembling, refer to "CABINET SECTION" in DISASSEMBLY/ASSEMBLY PROCEDURES.

5.1.3. HOT CIRCUIT

Primary circuit exists on the TV/VCR Main C.B.A.

This circuit is identified as " **HOT** " on the C.B.A. and in the Service Manual. Use extreme care to prevent accidental shock when servicing.

5.1.4. SERVICE MODE

In order to inhibit detection of the Supply & Takeup Photo Transistors, Reel Sensor, and Cylinder Lock, place a jumper between TP6001 and GND.

In this mode, Mechanism movement can be confirmed. When removing Cassette Up Ass'y, it can be confirmed without a cassette.

To release from this mode, remove the jumper between TP6001 and GND.

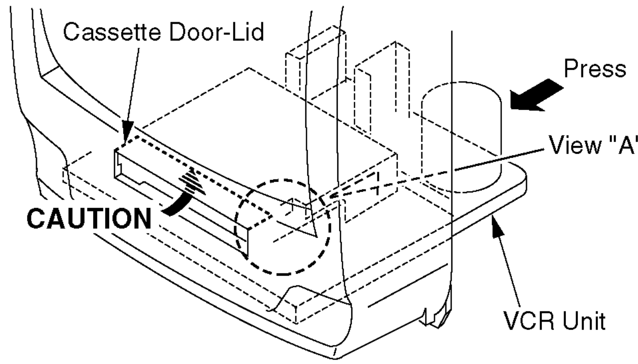
5.1.5. CAUTION FOR INSTALLATION OF VCR UNIT

CAUTION:

Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

Install the VCR Unit as follows:

1. Swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.
2. Make sure that all guide tabs are aligned properly. Then, press the VCR Unit straight in.



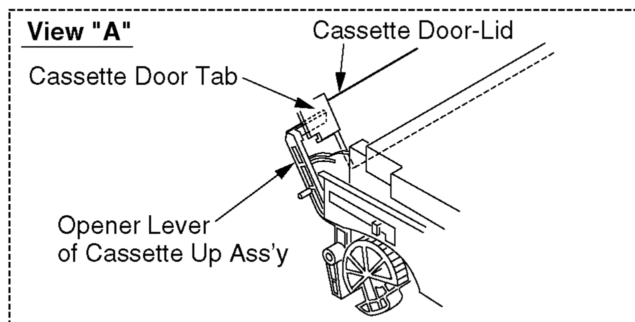


Fig. 3

5.1.6. HOW TO INITIALIZE MEMORY IC

After the Memory IC (IC6004) or TV/VCR Main C.B.A. is replaced, be sure to set the Default value to Memory IC as shown in "Memory IC Reference Table" below.

1. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted.

   The adjustment overlay will appear to Enter EVR Adjustment mode.

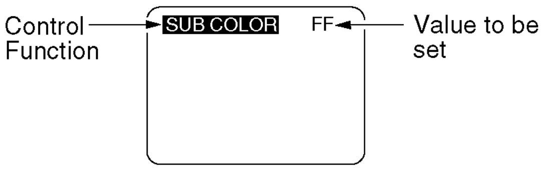


Fig. 4-1

2. Set the Default value of all Control functions using a remote control as shown in "Memory IC Reference Table."

   Note:

   For Selecting Control functions and setting Default value, refer to "HOW TO ENTER EVR ADJUSTMENT MODE" and "HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE" in ELECTRICAL ADJUSTMENT procedures.

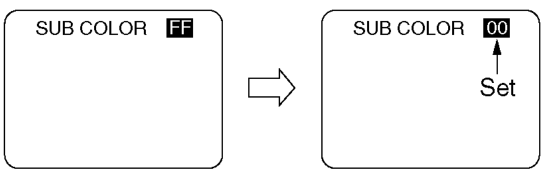


Fig. 4-2

3. Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF to release EVR Adjustment Mode.

   The Default value will be written to Memory IC (IC6004).

4. Perform all EVR Adjustments. (Refer to "EVR ADJUSTMENT WITH THE REMOTE CONTROL" in ELECTRICAL ADJUSTMENT procedures.)

Memory IC Reference Table

Control functions	Address	Range	Default
SUB COLOR	00	C0 – FF, 00 – 3F	**00**
SUB TINT	01	E0 – FF, 00 – 1F	**00**
SUB BRIGHT	02	C0 – FF, 00 – 3F	**F0**
CONTRAST	03	C1 – FF, 00	**00**
SUB SHARPNESS	04	E0 – FF, 00 – 1F	**00**
R CUT -OFF	05	00 – 7F	**1E**
G CUT -OFF	06	00 – FD	**3C**
B CUT -OFF	07	00 – FD	**3C**
G DRIVE	08	00 – 7F	**40**
B DRIVE	09	00 – 7F	**40**
SUB CONTRAST	0A	00 – 0F	**06**
H CENTER	0B	00 – 0F	**08**
SUB V	0C	00 – 03	**00**
V SIZE	0D	00 – 7F	**40**
V POSITION	0E	00 – 7F	**40**
ANR CTL	10	00 – EF	**89**
PICTURE CTL	11	00 – EF	**86**
VV COLOR	12	C0 – FF, 00 – 3F	**00**
VV TINT	13	E0 – FF, 00 – 1F	**00**
VV SHARPNESS	14	E0 – FF, 00 – 1F	**F8**
PG SHIFTER	15	01 – FD	**80**
FM ANT	18	00 – 01	**00/01**

Note:

1. Address is not displayed on the TV screen.
   Other Addresses except above are not used.
2. In models for USA, set the Default value of FM ANT to "00."
   In models for CANADA, set the Default value of FM ANT to "01."

5.1.7. METHOD FOR LOADING/UNLOADING OF MECHANISM

5.1.7.1. (Manual Method)

Turn the Loading Gear clockwise (for loading) or counterclockwise (for unloading) using needlenose pliers etc.

Note:

Do not use this method if Mechanism is jammed or locked.

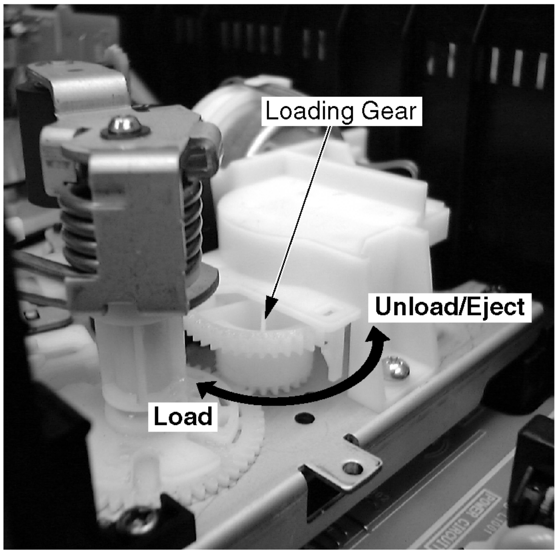


Fig. 5-1

5.1.7.2. (Electrical Method)

Apply +10.0 V DC Power Supply to the Loading Motor terminals.

Loading

DC + to Portion "a," DC - to Portion "b"

Unloading

DC - to Portion "a," DC + to Portion "b"

CAUTION:

Before applying DC Power Supply, be sure to disconnect the Motor Leads from the Connector P2503.

Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.

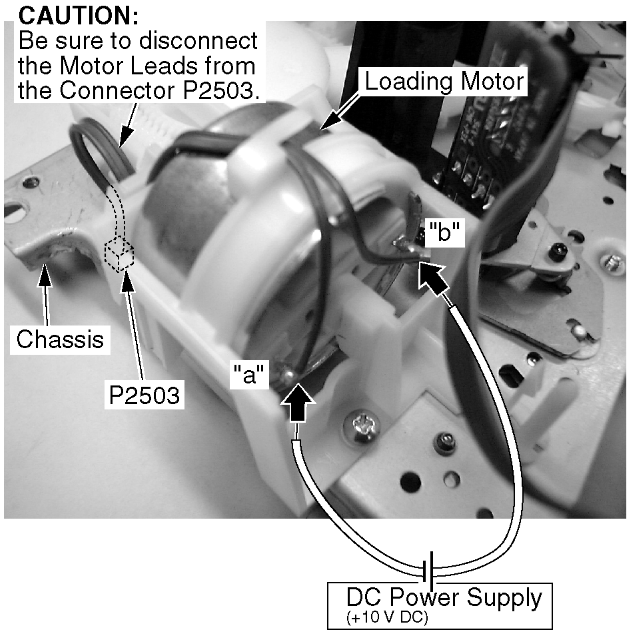


Fig. 5-2

When loading without a cassette, push Portion "a" on the Holder Unit of Cassette Up Ass'y so that the Lever clear the First Tab and Second Tab.

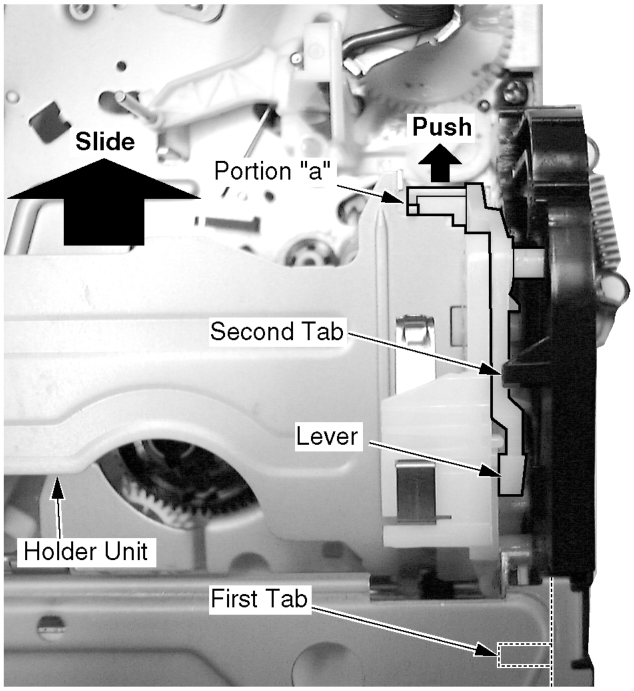


Fig. 5-3

5.1.8. HOW TO REMOVE A JAMMED TAPE

CAUTION:

Wiper Arm Unit may be damaged or its spring may be out of place when the jammed tape is removed by force.

Remove a jammed tape as follows:

5.1.8.1. Manual Method

When a tape jam is encountered, check the tape loading condition and use the following procedure to remove a tape jam.

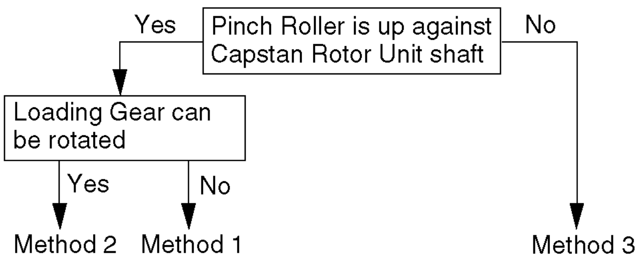
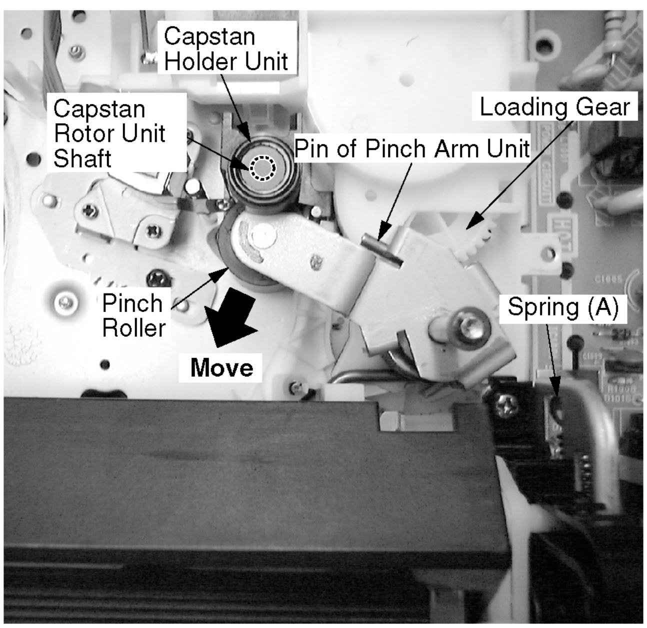


Fig. 6-1

5.1.8.1.1. Method -1:

1. Move the Pinch Roller Unit out by unhooking the Pin of Pinch Arm Unit so that the Pinch Roller is separated from the Capstan Rotor Unit shaft.



Top View

Fig. 6-2

2. Remove the tape from the tape path.
3. Rewind the tape into the cassette by rotating the Center Clutch Unit counterclockwise.
4. Unhook Spring (A) of the Drive Rack Arm.
5. Remove Screw (A).
6. Lift the Cassette Up Ass'y. While pulling the Cassette Up Ass'y out far enough so that it clears the Drive Rack Arm, slide the Drive Rack Unit as indicated by the arrow to remove the cassette tape from the Cassette Up Ass'y.
7. Check the cause of mechanical trouble and repair.

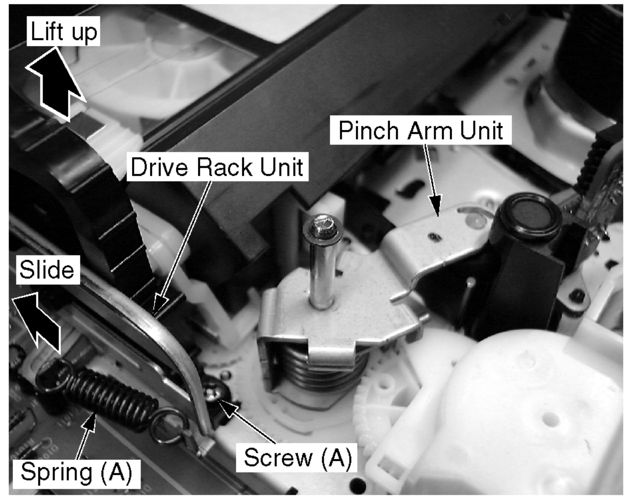


Fig. 6-3

5.1.8.1.2. Method -2:

1. Rotate Loading Motor counterclockwise with needlenose pliers, etc. so that the Pinch Roller is separated from the shaft of the Capstan Rotor Unit.
2. Perform Step 2 through Step 7 of Method -1.

5.1.8.1.3. Method -3:

1. Perform Step 2 through Step 7 of Method -1.

Note:

After repairing mechanical trouble, make sure that all gear alignments are correct, especially the Wiper Arm Unit and Drive Rack Unit of Cassette Up Ass'y. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

5.1.8.2. Electrical Method

Electrical method can only be performed when the mechanism is moved by rotating the Loading Gear.

CAUTION:

1. Before applying DC Power Supply, be sure to disconnect the Motor Leads from the Connector P2503.

   Otherwise, the Loading Motor Drive IC (IC2501) may be damaged.
2. If loading does not start in approx. 2 seconds after DC Power Supply is applied, DO NOT continue to apply DC Power Supply. Instead, perform "Manual Method."

1. Be sure to disconnect the Motor Leads from the Connector P2503.
2. Apply +10.0 V DC Power Supply to the Loading Motor terminals.
3. When the Loading Posts reach the fully unloaded position, remove the Power Supply.

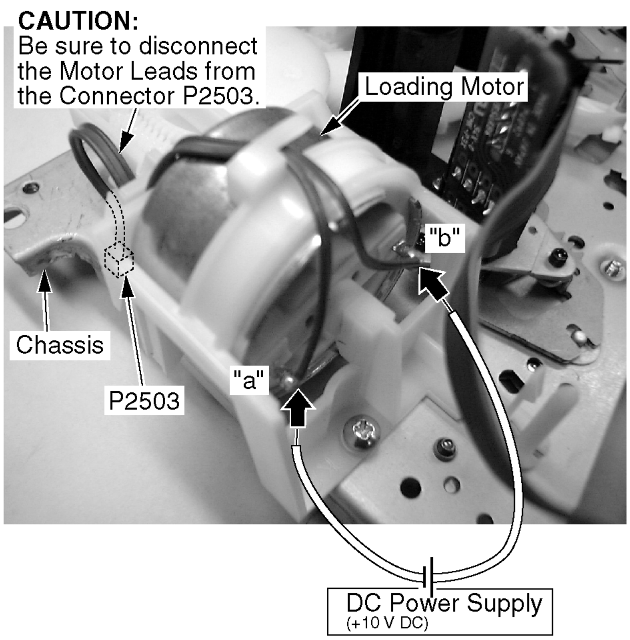


Fig. 7

4. Rewind the tape into the cassette by turning the Center Clutch Unit counterclockwise.
5. Eject the cassette by applying +10.0 V DC Power Supply again.

5.1.9. VCR Test Mode

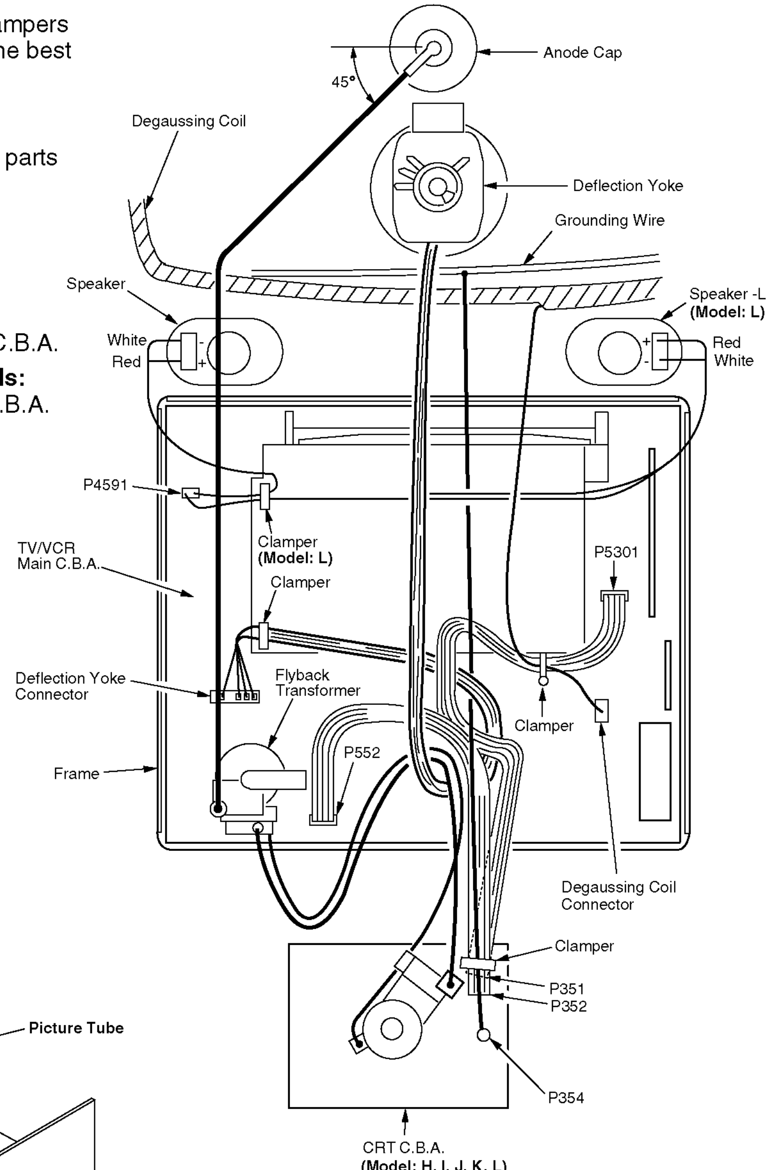
High Voltage is inhibited by connecting Jumper J801 on the TV/VCR Main C.B.A., however, it is possible to check the VCR even when CRT C.B.A. and Anode Cap are removed.

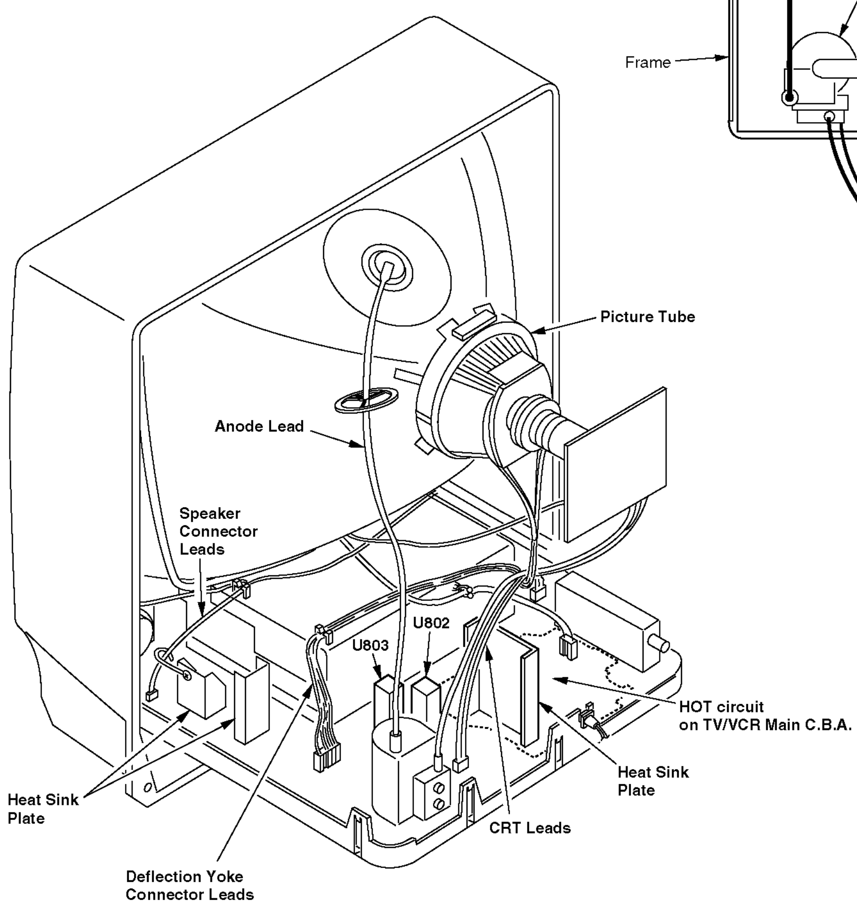
5.1.10. WIRE AND LEAD POSITION DIAGRAM

After servicing, make sure that all wires, leads, and clampers are placed in their original position. It is important for the best operation of the unit.

Note:
No lead wires or flat cables should touch any heating parts or the Heat Sink Plate.
Use extreme care especially for followings.

- **Anode Lead:**
  DO NOT touch the Picture Tube.
- **Speaker Connector Leads:**
  DO NOT touch Heat Sink Plates on TV/VCR Main C.B.A.
- **Deflection Yoke Connector Leads and CRT Leads:**
  DO NOT touch U802 and U803 on TV/VCR Main C.B.A.
  DO NOT touch Heat Sink Plate of HOT circuit on TV/VCR Main C.B.A.





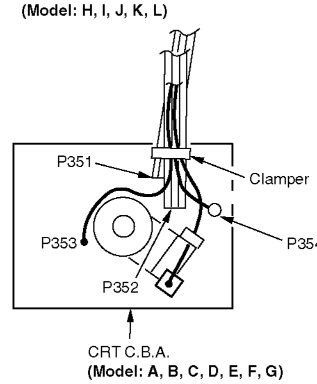


Fig. 8

5.1.11. DEFEATING THE AUTO TRACKING

To defeat the Auto Tracking Function, place the instrument in the STOP mode and place a jumper between TP6003 and TP6009 on the TV/VCR Main C.B.A. The tracking will be placed in the neutral position.

5.1.12. HOW TO SET TRACKING TO THE NEUTRAL POSITION

Ejecting the cassette tape and then reinserting it will reset the tracking to the Neutral position.

5.1.13. BLACK SCREWS ON THE CHASSIS

Black Screws are used on the Mechanism Chassis to identify screws that require adjustment.

5.1.14. HOW TO RESET ALL COMBINATION VCR MEMORY FUNCTIONS

To reset (clear) the select language, channel auto set and set clock functions to their initial power on condition (power on, no cassette inserted), hold down the PLAY and FF buttons on the unit together for more than 5 seconds.

Power will shut off.

5.1.15. HOW TO CONFIRM AUTO CLOCK SET FEATURE

1. Connect an RF cable from the output of one unit to the input of the test unit.
2. Select corresponding RF channels.
3. Playback a recording of P.B.S. channel including clock set data and confirm this feature.

5.1.16. VARIABLE VOLTAGE ISOLATION TRANSFORMER

An Isolation Transformer should always be used during the servicing of Combination VCR whose chassis is not isolated from the AC power line. Use a transformer of adequate power rating as this protects the technician from accidents resulting in personal injury from electrical shocks. It will also protect Combination VCR from being damaged by accidental shorting that may occur during servicing.

Also, when troubleshooting the above type of Power Supply Circuit, a variable isolation transformer is required in order to increase the input voltage slowly.

5.1.17. SPECIAL NOTE

All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the

"ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

5.1.18. REPLACEMENT PROCEDURE FOR LEADLESS (CHIP) COMPONENTS

The following procedures are recommended for the replacement of the leadless components used in this unit.

1. Preparation for replacement
   a. Soldering Iron
      Use a pencil-type soldering iron that uses less than 30 watts.
   b. Solder
      Eutectic Solder (Tin 63 %, Lead 37 %) is recommended.
   c. Soldering time
      Do not apply heat for more than 4 seconds.
   d. Preheating
      Leadless capacitor must be preheated before installation. -(266 °F ~ 302 °F)
      (130 °C ~150 °C) for about two minutes.

Note:

   a. Leadless components must not be reused after removal.
   b. Excessive mechanical stress and rubbing of the component electrode must be avoided.

2. Removing the leadless component
   Grasp the leadless component body with tweezers and alternately apply heat to both electrodes. When the solder on both electrodes is melted, remove the leadless component with a twisting motion.

Note:

   a. Do not attempt to lift the component off the board until the component is completely disconnected from the board by a twisting action.
   b. Be careful not to break the copper foil on the printed circuit board.

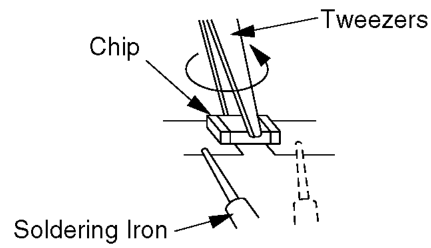


Fig. 9-1

3. Installing the leadless component
   a. Presolder the contact points on the circuit board.

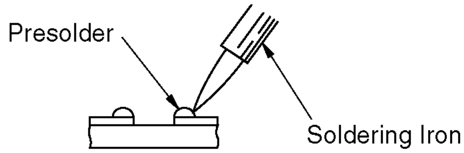


Fig. 9-2

b. Press the part downward with tweezers and solder both electrodes as shown below.

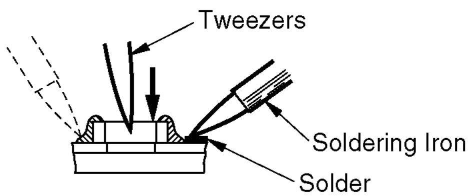


Fig. 9-3

Note:

Do not glue the replacement leadless component to the circuit board.

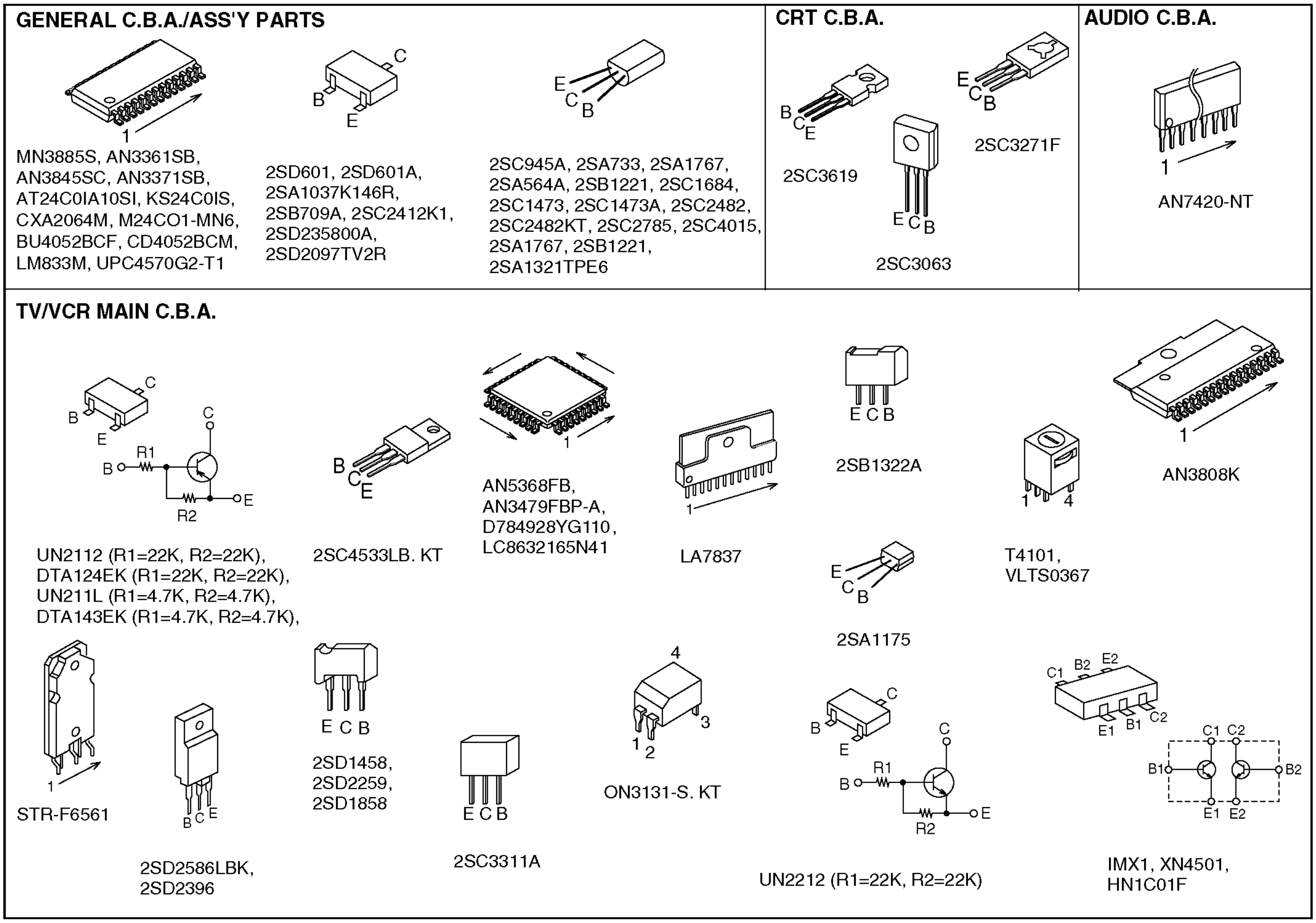
5.1.19. MODEL NO. IDENTIFICATION MARK

Use Marks shown in the chart below to distinguish the different models included in this Service Manual.

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

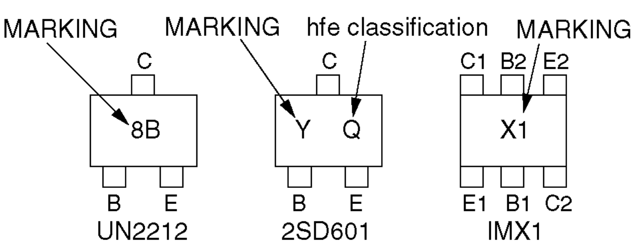
Note:
Refer to Item 3 of Schematic Diagram Notes of Schematic Diagram and Circuit Board Layout Notes, for mark "Z."

5.2. IC, TRANSISTOR AND CHIP PART INFORMATION

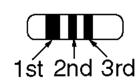


5.2.1. HOW TO READ THE IDENTIFICATION MARK OF CHIP COMPONENTS.

MARKING	PART NO.	MARKING	PART NO.
B	2SB709A	6B	UN2112
F	2SA1037K146R	8B	UN2212
Y	2SD601	5H	XN4501
Z	2SD601A	6Q	UN211L
B1	2SC2412K1	X1	IMX1
1A	MA110	13	DTA143EK
1B	MA111	15	DTA124EK



5.2.2. HOW TO READ THE VALUES OF THE CYLINDRICAL TYPE CHIP COMPONENTS.



The widest color band must be read first for value.

1. RESISTOR

   There are two types (ERD10LLJ... and ERD10TLJ...) of chip parts.

   a. ERD10LLJ: Refer to above type.

   b. ERD10TLJ: The narrow color band must be read first for value.

   If this part is included in the parts list, be sure that the color band is read properly when servicing.

2. CAPACITOR

   Because of the width of the color bands, the reading direction cannot be specified. However, the color band can be read on either side. Be sure to confirm the value using the schematic diagram.

CAUTION :

Once chip parts are removed, they must not be reused.

Always use a new part when installing a chip part.

6 DISASSEMBLY/ASSEMBLY PROCEDURES

6.1. CABINET SECTION

6.1.1. Disassembly Flowchart

Perform all disassembly procedures in the order described in the "Disassembly Flowchart" shown below. When reassembling, use the reverse procedure.

CAUTION:

Disconnect AC plug before disassembly.

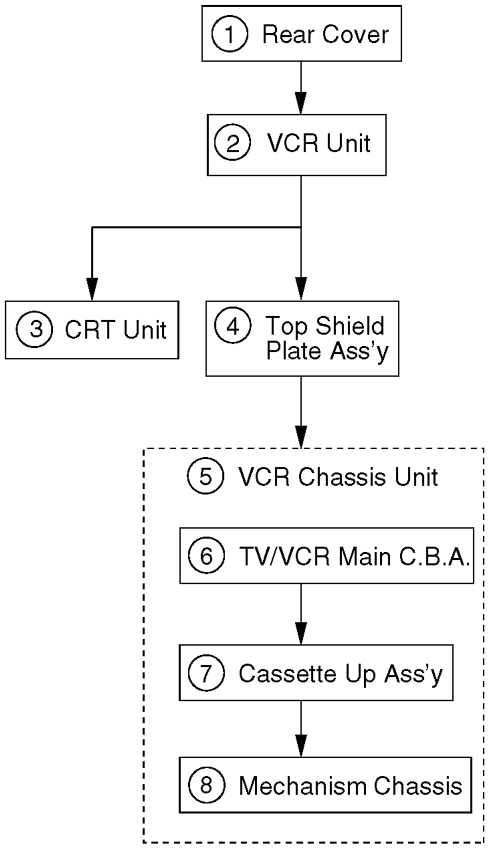


Fig. D1

6.1.2. Disassembly Method

STEP /LOC. No.	PART	Fig. No.	REMOVE	Note
1	Rear Cover	D2	6(S-1)	---
2	VCR Unit	D3 D4	Anode Cap, P354, CRT C.B.A., Deflection Yoke Connector, Degaussing Coil Connector, Clampers, P4591, 2 Tabs, 2 Guide Tabs	1
3	CRT Unit	D2	4(S-2), Degaussing Coil	2
4	Top Shield Plate Ass'y	D5	4(S-3), (S-4), (S-5), Grounding Wire	---
5	VCR Chassis Unit	D5	(S-6), 2(S-7), 2(S-8), 6(L-1), Grounding Plate	3
6	TV/VCR Main C.B.A.	D5	P3001, P6202, P6201, P4001	4
7	Cassette Up Ass'y	D5	2(S-9), (S-10), (P-1), (L-2)	5
8	Mechanism Chassis	D5	----------------	---
↑ A	↑ B	↑ C	↑ D	↑ E

How to read chart shown above:

A:Order of Procedure steps.

When reassembling, perform steps(s) in reverse order.

These numbers are also used as the identification (location) No. of parts in Figures.

B: Part to be removed or installed.

C: Fig. No. showing Procedure or Part Location.

D: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.

6(S-1) = 6 Screws (S-1), 6(L-1) = 6 Locking Tabs (L-1),

(P-1) = Spring (P-1)

E: Refer to "Notes in chart."

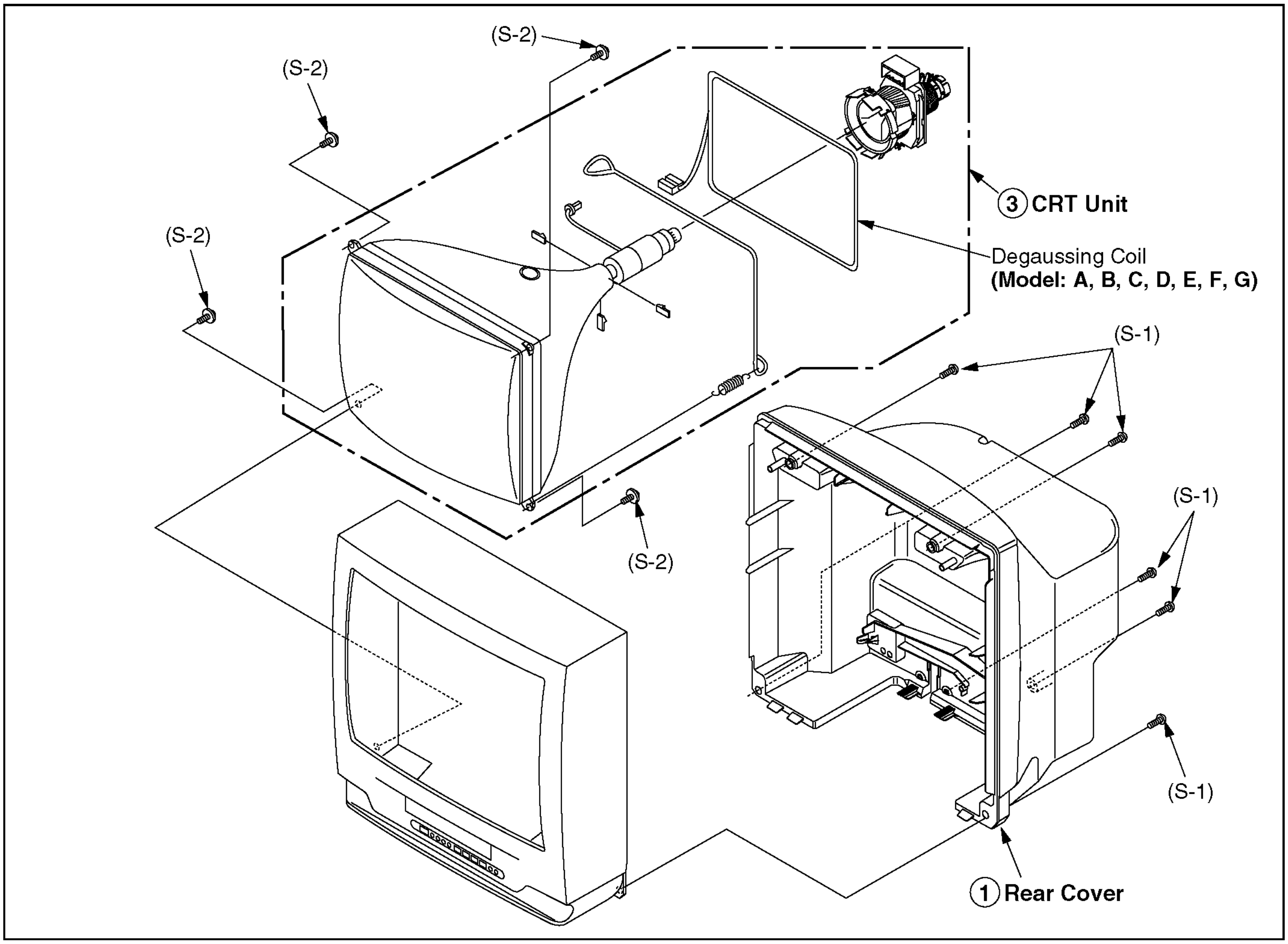


Fig. D2

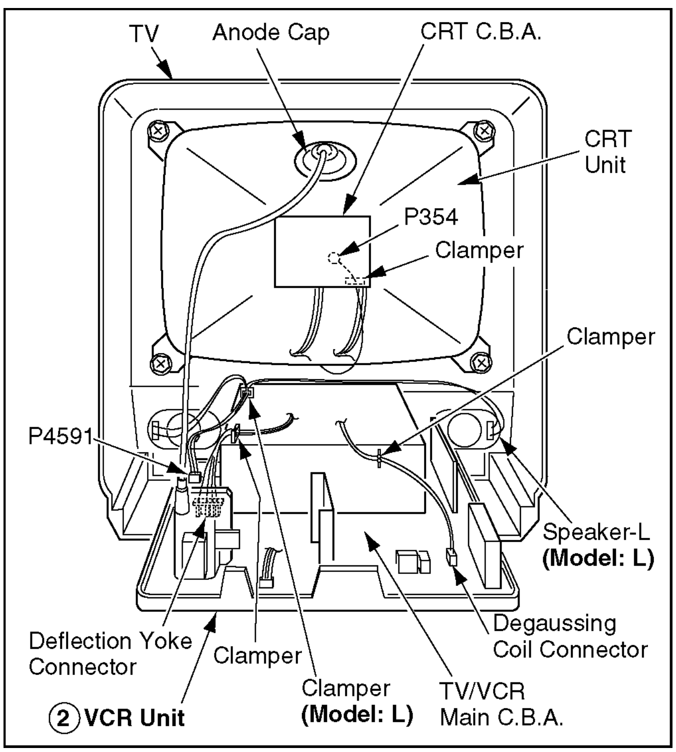


Fig. D3

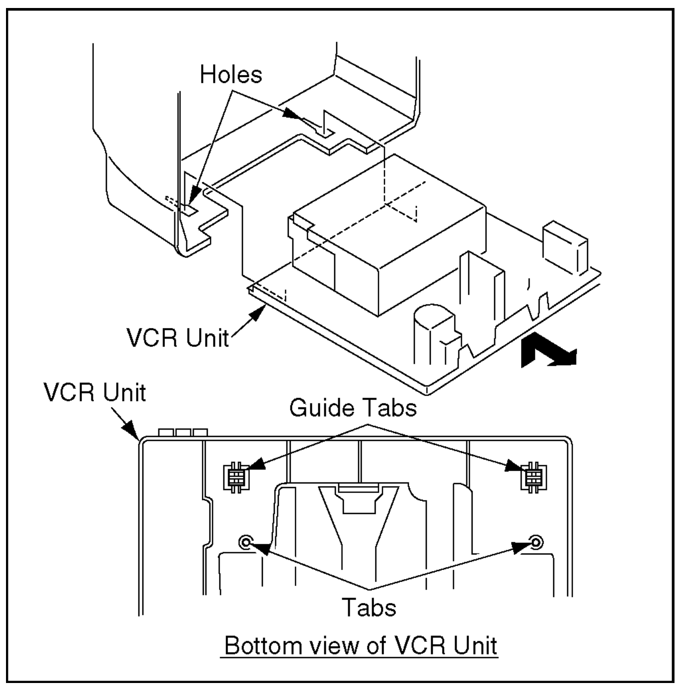


Fig. D4

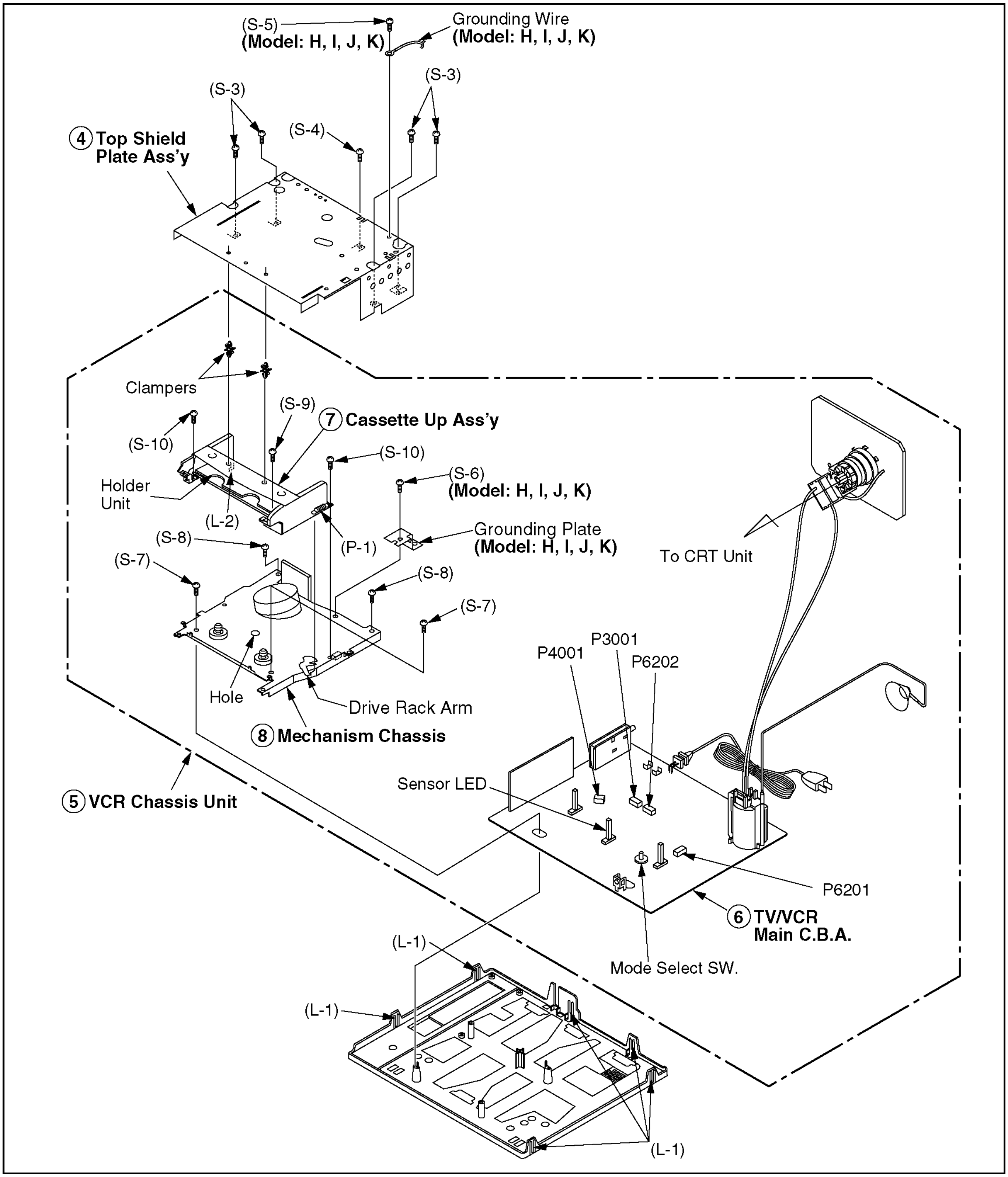

(S-5)
(Model: H, I, J, K)
Grounding Wire
(Model: H, I, J, K)
(S-3)
(S-3)
(S-4)
4 Top Shield Plate Ass'y
Clampers
(S-9)
7 Cassette Up Ass'y
(S-10)
(S-10)
(S-6)
(Model: H, I, J, K)
Holder Unit
(L-2)
(S-8)
(P-1)
Grounding Plate
(Model: H, I, J, K)
To CRT Unit
(S-7)
(S-8)
(S-7)
P4001
P3001
P6202
Hole
Drive Rack Arm
8 Mechanism Chassis
Sensor LED
5 VCR Chassis Unit
P6201
6 TV/VCR Main C.B.A.
(L-1)
Mode Select SW.
(L-1)
(L-1)

Fig. D5

6.1.2.1. Notes in chart

1. **Installation of VCR Unit**

   CAUTION:

   Opener Lever may be damaged when VCR Unit is installed, with Cassette Door-Lid and Opener Lever of Cassette Up Ass'y set incorrectly.

   a. When installing the VCR Unit, swing the Cassette Door-Lid all the way open until the Cassette Door tab clears the Opener Lever.

   b. Make sure that all guide tabs are aligned properly.

   Then, press the VCR Unit straight in.

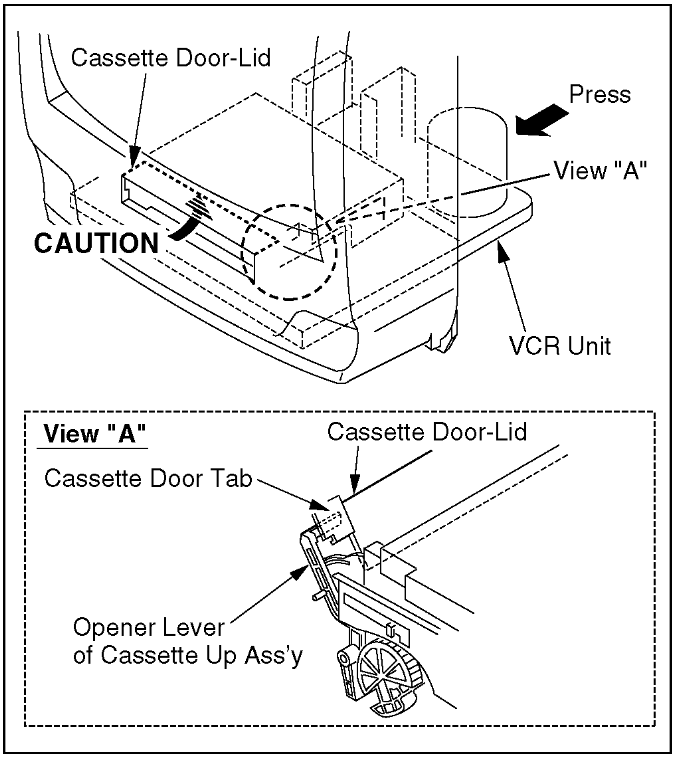


Fig. D6

2. **Removal of CRT Unit**

   Place the Unit face down on a soft cloth before removing the CRT Unit.

   Installation of CRT Unit (Model: A, B, C, D, E, F, G)

   When installing Degaussing Coil, place the Degaussing Coil correct position.

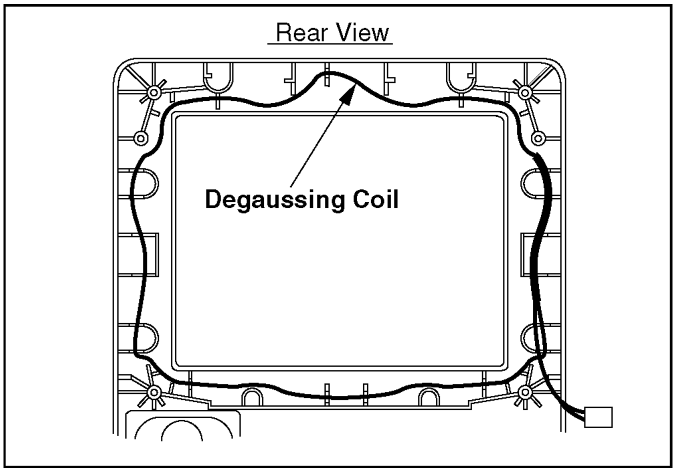


Fig. D7

3. **Installation of VCR Chassis Unit**

   When installing 2 Screws (S-7), slide the Holder Unit of the Cassette Up Ass'y (Refer to "METHOD FOR LOADING/UNLOADING OF MECHANISM" in SERVICE NOTES) to tighten screws. Then, slide it back to the **EJECT** Position.

   Make sure that Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

4. **Removal of TV/VCR Main C. B. A.**

   Work carefully so as not to break Sensor LED when lifting the Mechanism Chassis and Cassette Up Ass'y.

   Installation of Mechanism Chassis and Cassette Up Ass'y onto TV/VCR Main C.B.A.

   a. Make sure the Mode Select SW. on the TV/VCR Main C.B.A. is in **EJECT** position. If not, rotate the Mode Select SW. until the alignment projection is in the **EJECT** Position.

   b. Make sure the Mechanism and Cassette Up Ass'y are in the **EJECT** Position. (Refer to "EJECT Position Confirmation" in DISASSEMBLY/ASSEMBLY PROCEDURES.)

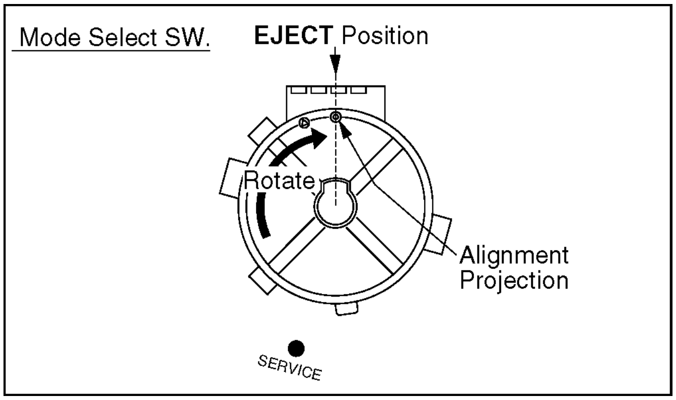


Fig. D8

   c. Install the Mechanism Chassis and Cassette Up Ass'y straight onto the TV/VCR Main C.B.A. so that the Sensor LED clears the hole in the Mechanism Chassis and that 4 Connectors (P6201, P6202, P3001, and P4001) are aligned and seated securely.

5. **Installation of Cassette Up Ass'y**

   a. Confirm that the Locking Tab (L-2) under the Cassette Up Ass'y is in Hole on the Mechanism Chassis when installing the Cassette Up Ass'y. Then, slide the Cassette Up Ass'y towards the back.

   b. When installing 2 Screws (S-9), slide the Holder Unit (Refer to "METHOD FOR LOADING/UNLOADING OF MECHANISM" in SERVICE NOTES) to tighten screws. Then, slide it back to the **EJECT** Position.

   c. Hook Spring (P-1) to the Drive Rack Arm on the Mechanism Chassis.

6.2. MECHANISM SECTION

6.2.1. Disassembly/Reassembly Method

This procedure starts with the condition that the cabinet parts and TV/VCR Main C.B.A. have been removed.
When reassembling, perform the step(s) in the reverse order.
Perform all disassembly/reassembly and alignments procedures in EJECT Position.

Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	------------	Grounding Plate Unit	J2-1	(S-1)	Adjustment
②	------------	Full Erase Head	J2-1	(L-1)	
③	1	Cylinder Unit	J2-1	P4092, Unsolder, 2(S-2), 3(S-3), Head Amp C.B.A.	TAPE INTERCHANGEABILITY Adjustment
④	------------	Capstan Belt	J3-1	-	
⑤	------------	Support Angle	J3-1	(S-4), 2(S-5)	
⑥	5	Intermediate Gear B	J3-1	(L-2)	Gear Alignment
⑦	4,5,6	Main Cam Gear	J3-1	Main Cam Push Nut	Gear Alignment
⑧	4	Center Clutch Unit	J4-1	(W-1)	
⑨	4,8	Changing Gear Spring	J4-1	-	
⑩	4,8,9	Changing Gear	J4-1	-	
⑪	4,8,9,10	Idler Arm Unit	J4-1	-	
⑫	------------	Reel Gear	J5-1	2(L-3)	
⑬	4,5,6,7,8,9,10	Main Rod	J5-1	(W-2), (L-4)	Gear Alignment
⑭	------------	Stopper Angle	J6-1	(S-6)	
⑮	4,5,14	Capstan Rotor Unit	J6-1	-	
⑯	4,5,14,15	Oil Seal	J6-1	-	
⑰	4,5,14,15	Capstan Stator C.B.A.	J6-1	P2503, 2(S-7)	
⑱	------------	MR Head	J6-1	(S-8), Unsolder	MR HEAD GAP Adjustment
⑲	4,8,9,10,13	T Loading Arm Unit	J7-1	-	Gear Alignment
⑳	4,5,6,7,8,9,10,13,19	S Loading Arm Unit	J7-1	-	Gear Alignment
㉑	------------	T Brake Unit	J8-1	-	
㉒	------------	Tension Control Arm Unit	J8-1	3(L-5)	
㉓	21	T Reel Table	J8-1	-	
㉔	22	S Reel Table	J8-1	-	
㉕	22	Tension Arm Unit	J8-1	2(L-6), (P-1), (P-2)	
㉖	22,25	Loading Post Base-T Unit	J9	-	P2 AND P3 POST HEIGHT, TAPE INTERCHANGEABILITY Adjustment
㉗	22,25	Loading Post Base-S Unit	J9	-	
㉘	------------	Opener Piece	J10-1	2(L-7)	
㉙	4,5,6,7	Drive Rack Arm	J10-1	-	
㉚	28	Pinch Arm Unit	J10-1	(C-1)	
㉛	28,30	P5 Arm Unit	J10-1	-	
㉜	5,6,28	Intermediate Gear A	J10-1	-	Gear Alignment
㉝	38	Motor Block Unit	J11-1	2(S-9)	
㉞	------------	Audio Control Head Unit	J11	(S-10)	TAPE INTERCHANGEABILITY Adjustment
㉟	5,6,28,30,32,33	Lift Gear	J11	-	
㊱	4,5,14,15,33	Capstan Holder Unit	J11	3(S-11)	
㊲	22,25	Tension Arm Boss	J11	(L-8)	
㊳	------------	Cleaner Arm Unit **(Model: A, H)**	J11	(L-9)	
A	B	C	D	E	F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.

B: Steps to be completed prior to the current step.

C: Part to be removed or installed.

D: Fig. No. showing Procedure or Part Location.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),
(W-1) = Washer (W-1), (P-1) = Spring (P-1),
(C-1) = Cut Washer (C-1)

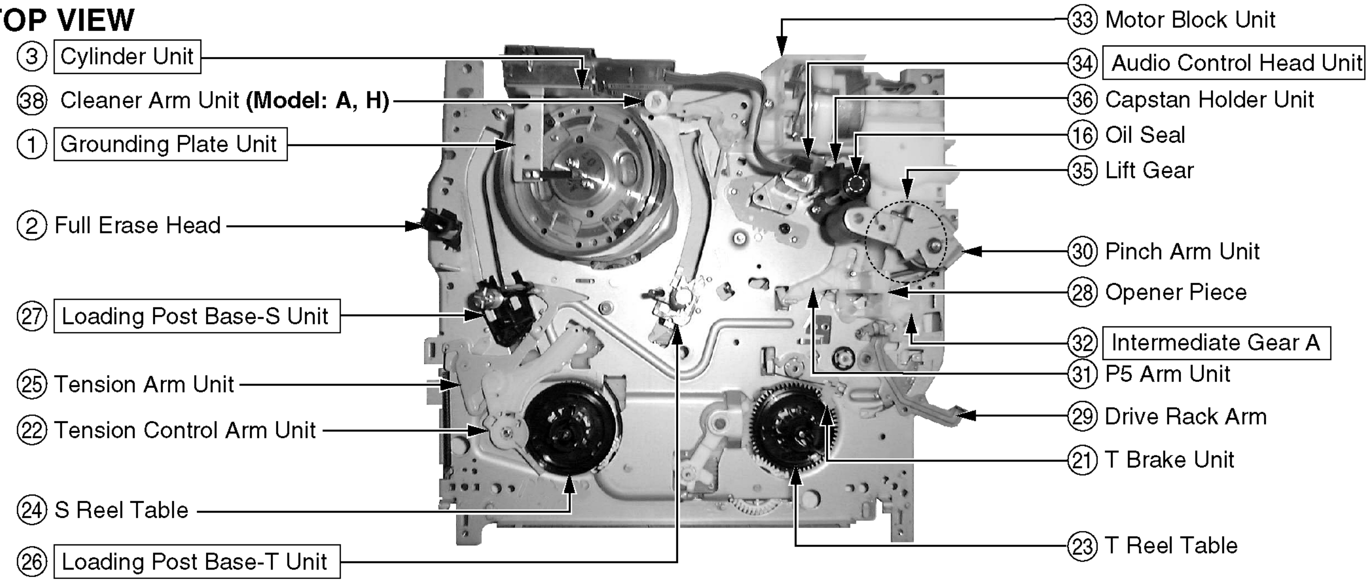
F: Alignment/Adjustment which is required when installing or replacing each Parts.

CAUTION:
Removed Cut Washer is not reusable.
If removed, install a new one.

6.2.2. Inner Parts Location

Note: BOX indicates alignment (Gear Alignment or Mechanical Adjustment) required when a part is replaced.

TOP VIEW



BOTTOM VIEW

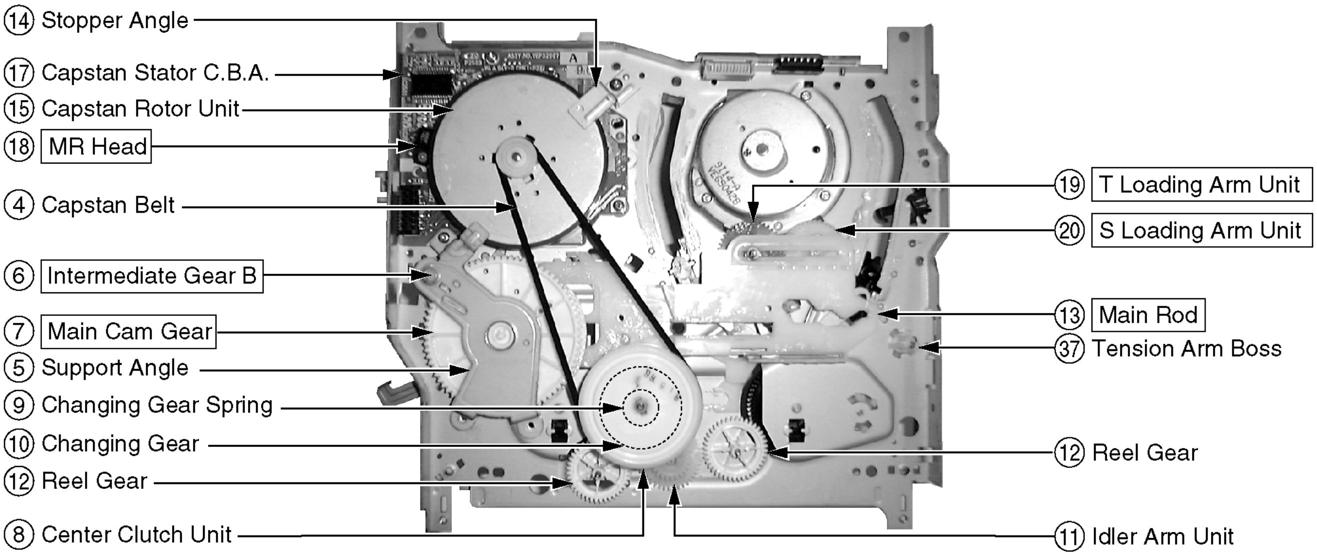


Fig. J1-1

6.2.3. EJECT Position Confirmation

Check the following alignment points to confirm that the Mechanism and Cassette Up Ass'y are in the **EJECT** Position from the top side.

(By using alignment points ✤1 for the S & T Loading Arm Units, and ✤2 for the Main Cam Gear, It is possible to confirm each alignment point from the top side, even though they are located on the bottom side of the mechanism chassis.)

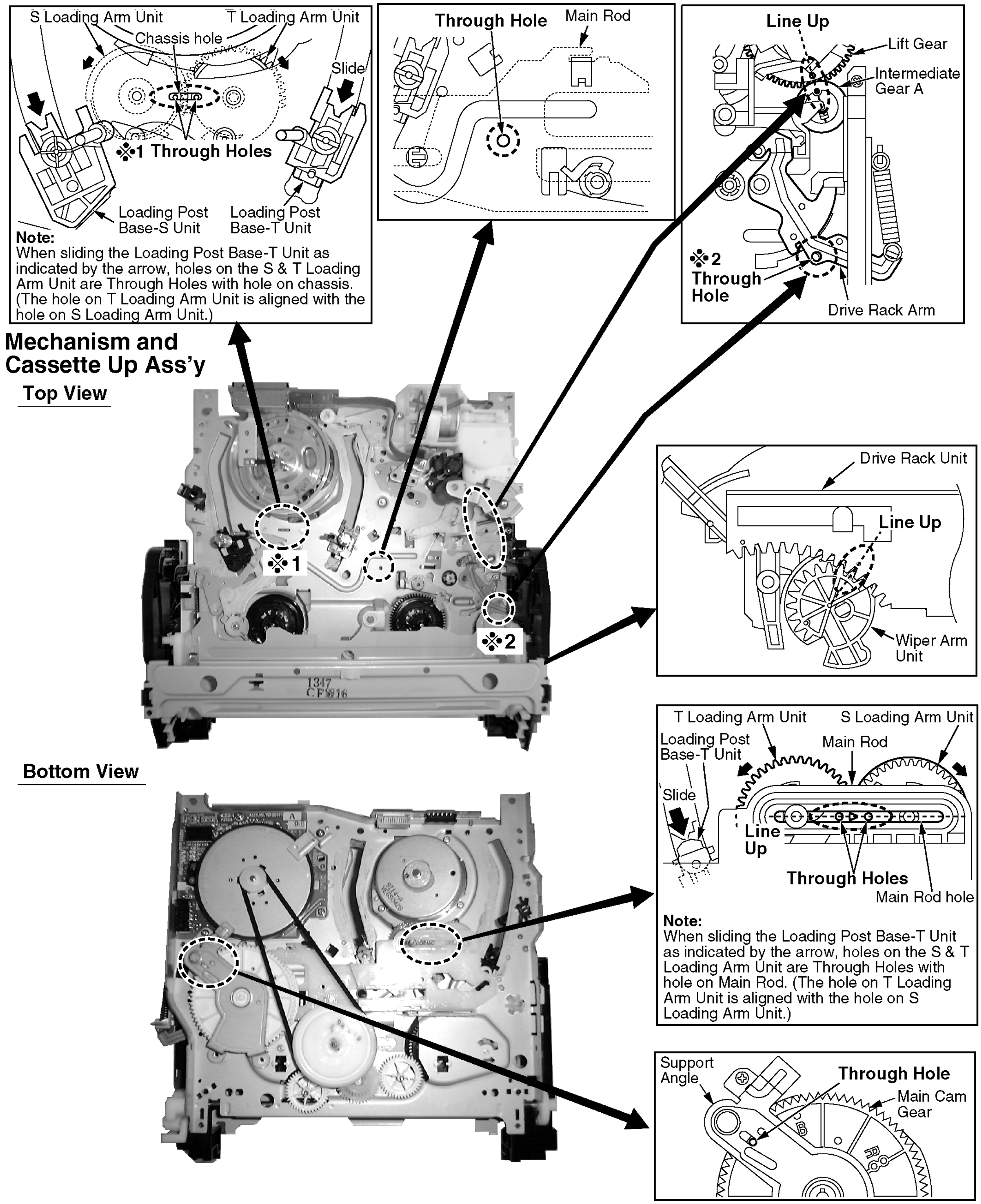


Fig. J1-2

6.2.4. Grounding Plate Unit, Full Erase Head, and Cylinder Unit

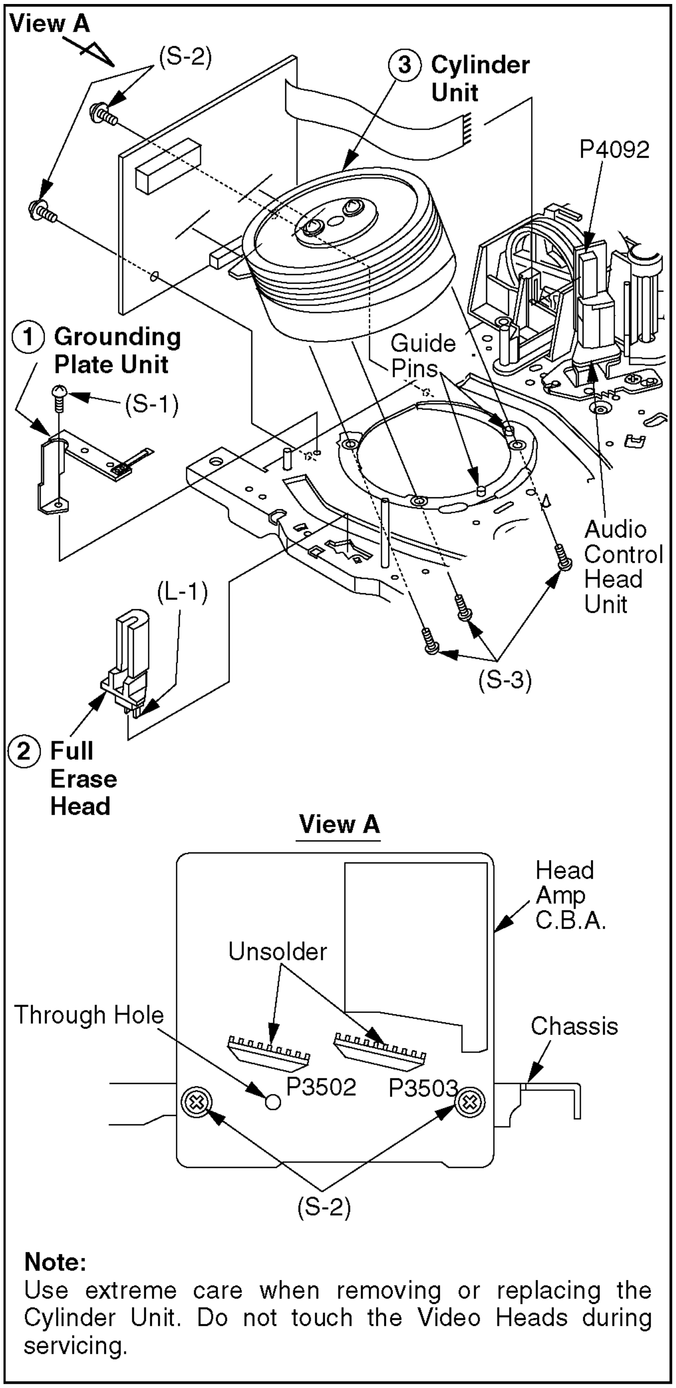


Fig. J2-1

6.2.4.1. Reassembly Notes

1. **Adjustment of Grounding Plate Unit**

   a. After installing, make sure that the Grounding Plate Unit, on the top side of mechanism chassis, is positioned on the front side of the Cylinder shaft so that the center line of the plate is just less than 1.0 mm measured from the center of the Cylinder shaft.

   If required, adjust the plate position by loosening Screw (S-1).

   Never install the Grounding Plate Unit on the rear side of the Cylinder shaft.

   Incorrect positioning will cause cylinder buzz.

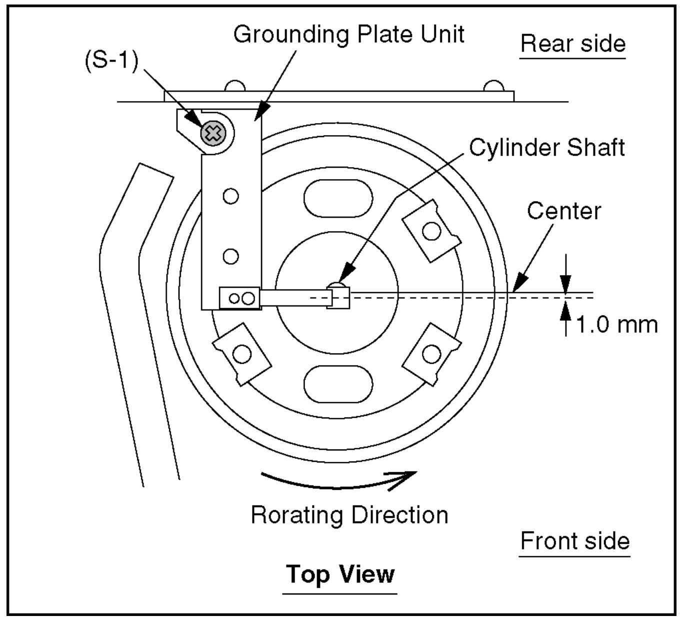


Fig. J2-2

6.2.5. Capstan Belt, Support Angle, Intermediate Gear B, and Main Cam Gear

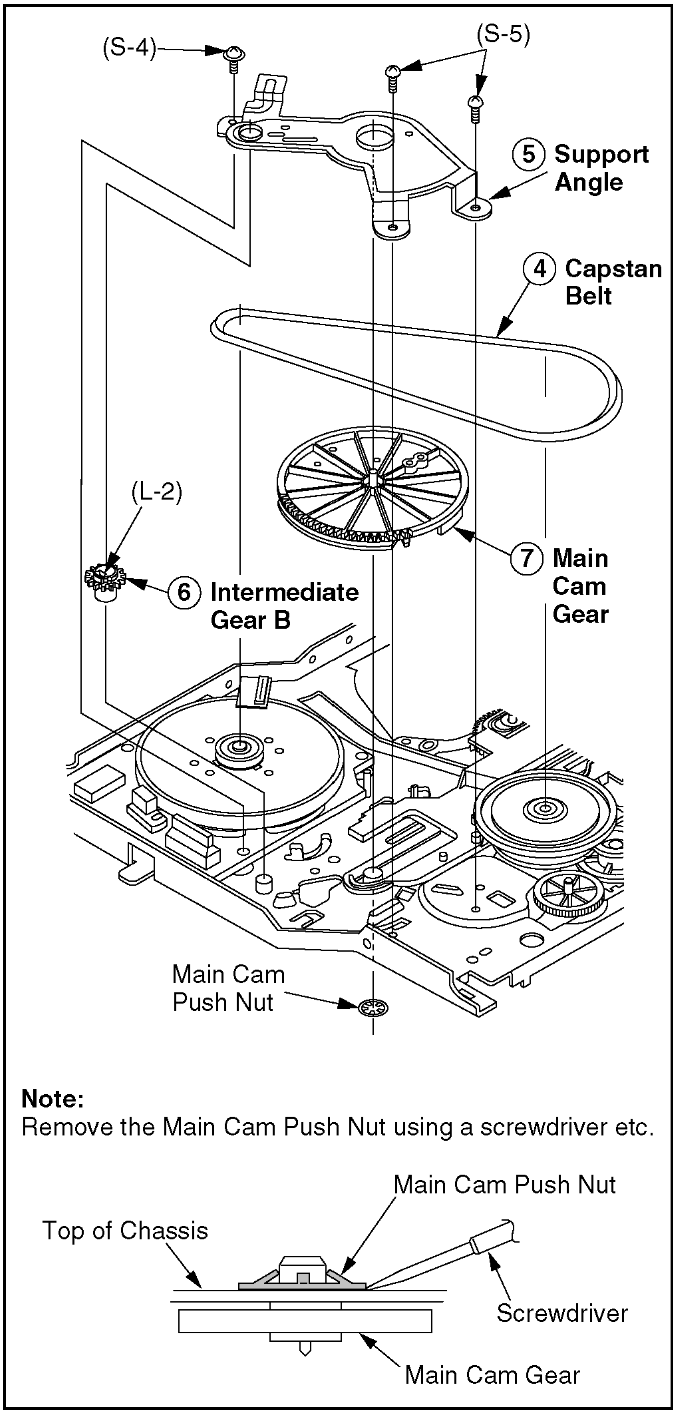


Fig. J3-1

6.2.5.1. Reassembly Notes

1. **Alignment of Main Cam Gear, Drive Rack Arm, and Main Rod**
   a. Confirm that the hole on Main Rod is a Through Hole with a hole on chassis.
   b. Confirm that the hole on Drive Rack Arm is a Through Hole with a hole on chassis.
   c. Install the Main Cam Gear so that the projection of Main Cam Gear is in the upward position as shown.

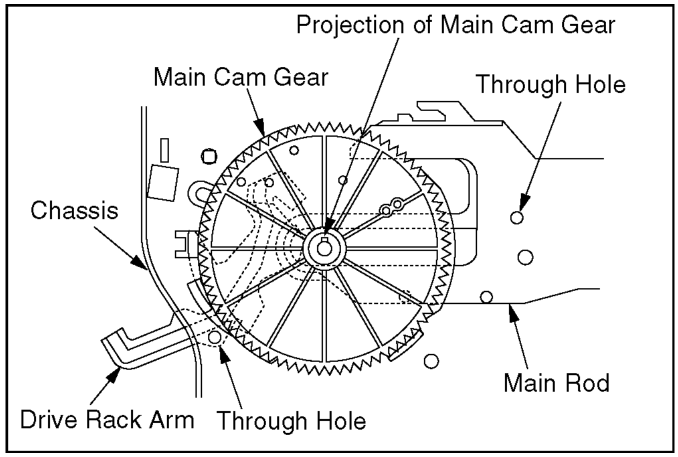


Fig. J3-2

2. **Confirmation/Alignment of Intermediate Gear B, Main Cam Gear, and Intermediate Gear A**
   a. Confirm that the Hole A on Lift Gear is a Through Hole with a hole on chassis.
   b. Confirm that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.

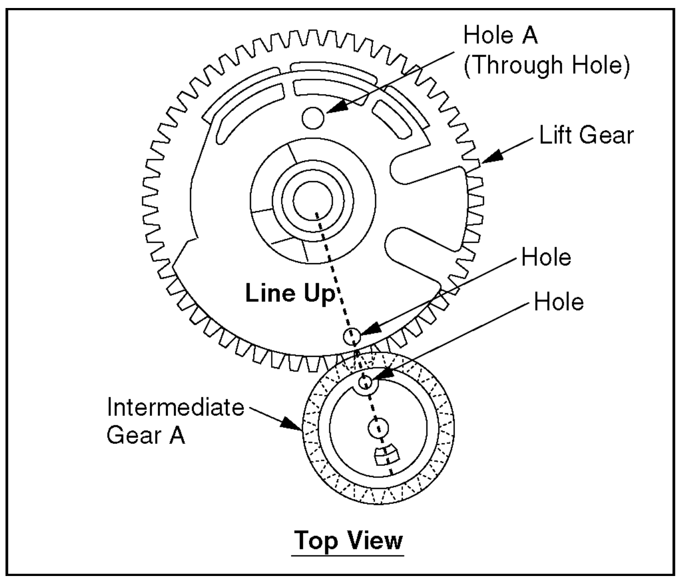


Fig. J3-3

   c. Install the Intermediate Gear B so that the hole on the Intermediate Gear B is aligned with the hole on the Main Cam Gear.

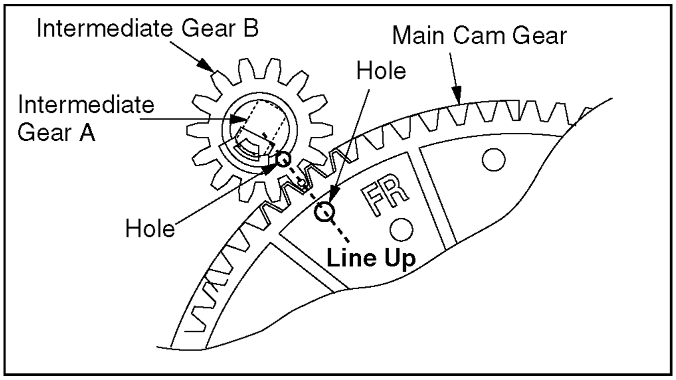


Fig. J3-4

3. **Holes on Main Cam Gear**
   a. The EJECT mode Hole on Main Cam Gear should be a Through Hole with Hole A on Support Angle in EJECT mode. The each mode Hole on Main Cam Gear should be a Through Hole with Hole B on Support Angle in each mode.

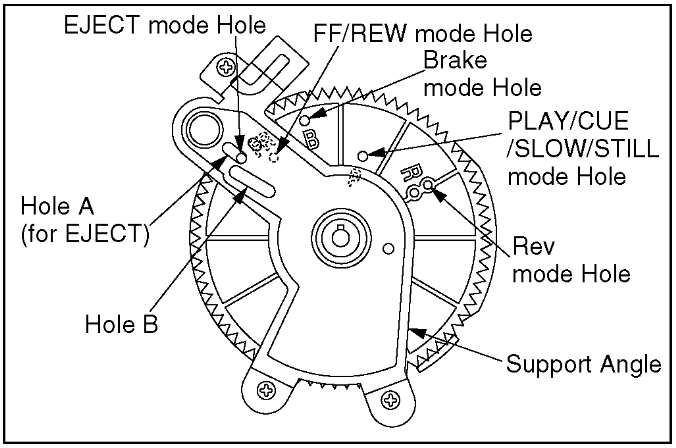


Fig. J3-5

4. **Main Cam Gear Kit**
   a. Main Cam Gear is supplied as a Main Cam Gear Kit only (Kit No. VVGS0009).

   Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut.

   However, Main Cam Push Nut is available separately as a replacement part.

5. **Installation of Main Cam Gear and Main Cam Push Nut**
   a. After installing the Support Angle, install the Main Cam Push Nut with Needlenose Pliers etc. so that it is flush with the chassis.

   There may be some slight scratches on the Shaft of Main Cam Gear, when removing the Main Cam Gear. In case that the Main Cam Gear can be installed securely without tottering, it is fine to use the one. If any tottering, install all new parts.

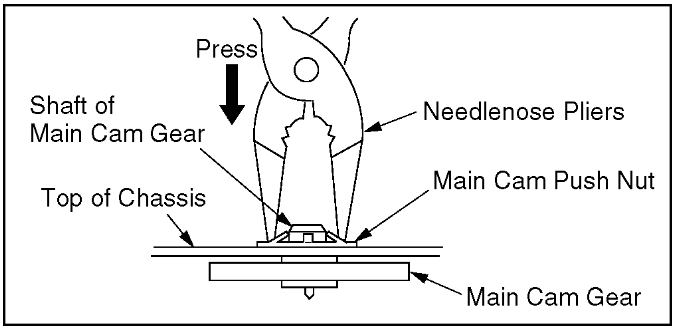


Fig. J3-6

6. The Main Cam Push Nut is not reusable. Install a new one.

6.2.6. Center Clutch Unit, Changing Gear Spring, Changing Gear, and Idler Arm Unit

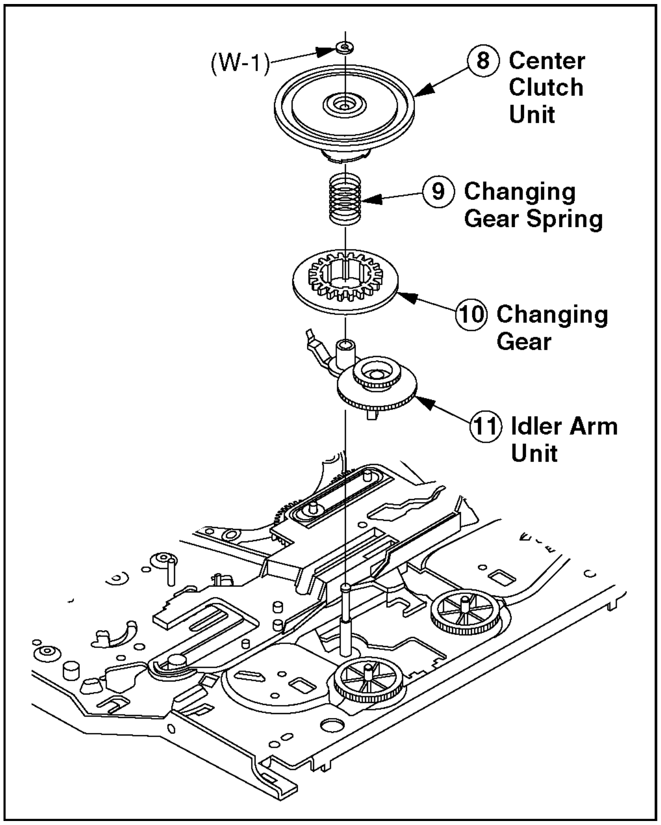


Fig. J4-1

6.2.6.1. Reassembly Notes

1. **Installation of Center Clutch Unit**
   a. Fit the Center Clutch Unit into the Changing Gear.

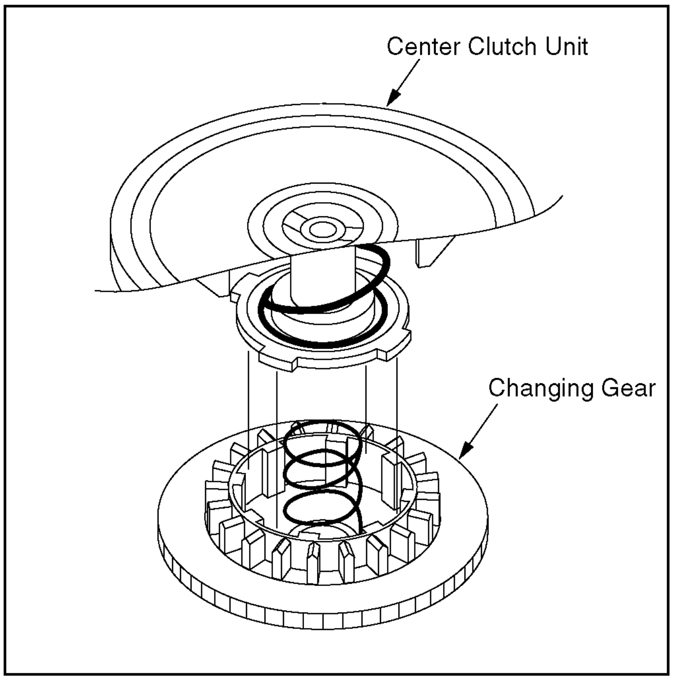


Fig. J4-2

6.2.7. Reel Gear and Main Rod

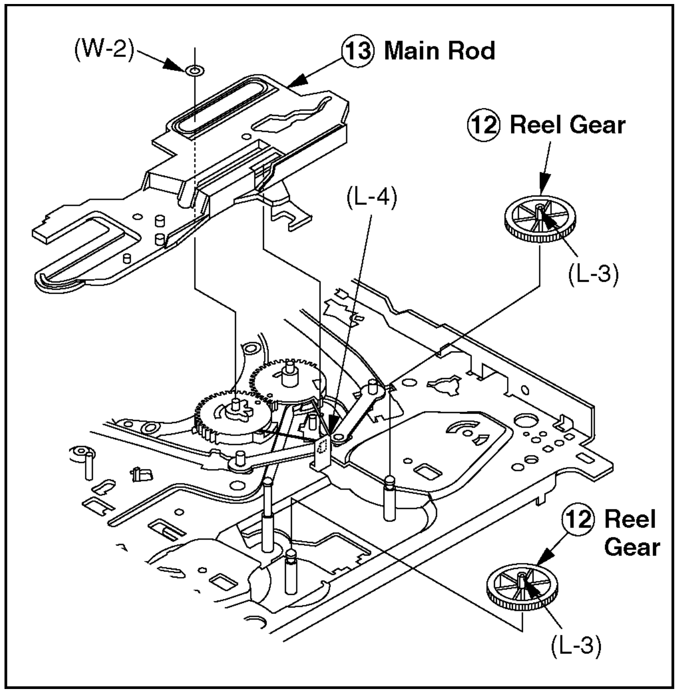


Fig. J5-1

6.2.7.1. Reassembly Notes

1. **Alignment of Main Rod and T Loading Arm Unit**
   a. Align the Gear of T Loading Arm Unit with Gear of Main Rod. Confirm that the Hole on Main Rod is a Through Hole with a hole on chassis.

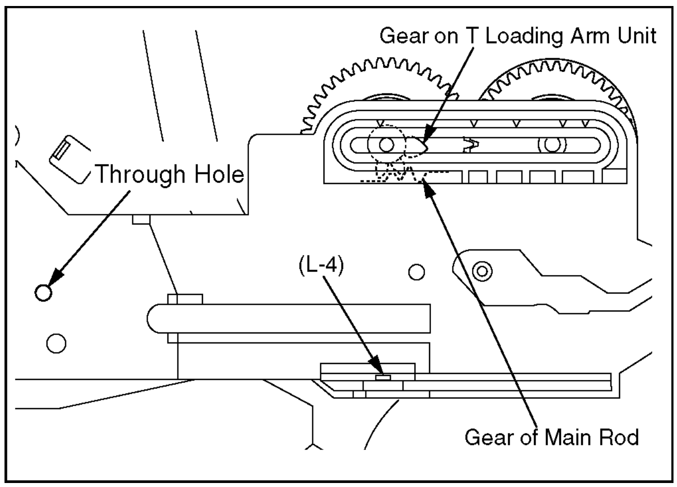
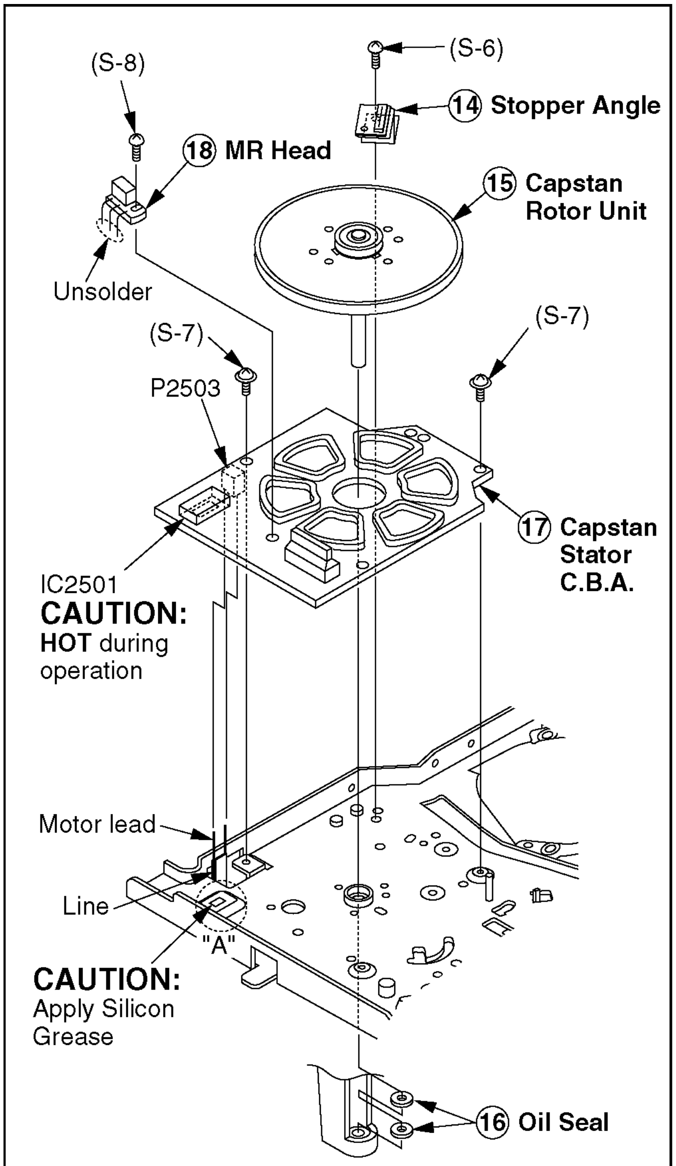


Fig. J5-2

6.2.8. Stopper Angle, Capstan Rotor Unit, Oil Seal, Capstan Stator C.B.A., and MR Head



CAUTION:
When removing the Capstan Stator C.B.A., avoid touching IC2501 on the Capstan Stator C.B.A. because it is **HOT** during operation.

Fig. J6-1

6.2.8.1. Reassembly Notes

1. **Application of Silicon Grease**

CAUTION:

When installing the IC2501 (AN3845SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301) as shown. Be careful not to touch other parts with greased portion to prevent grease depletion.

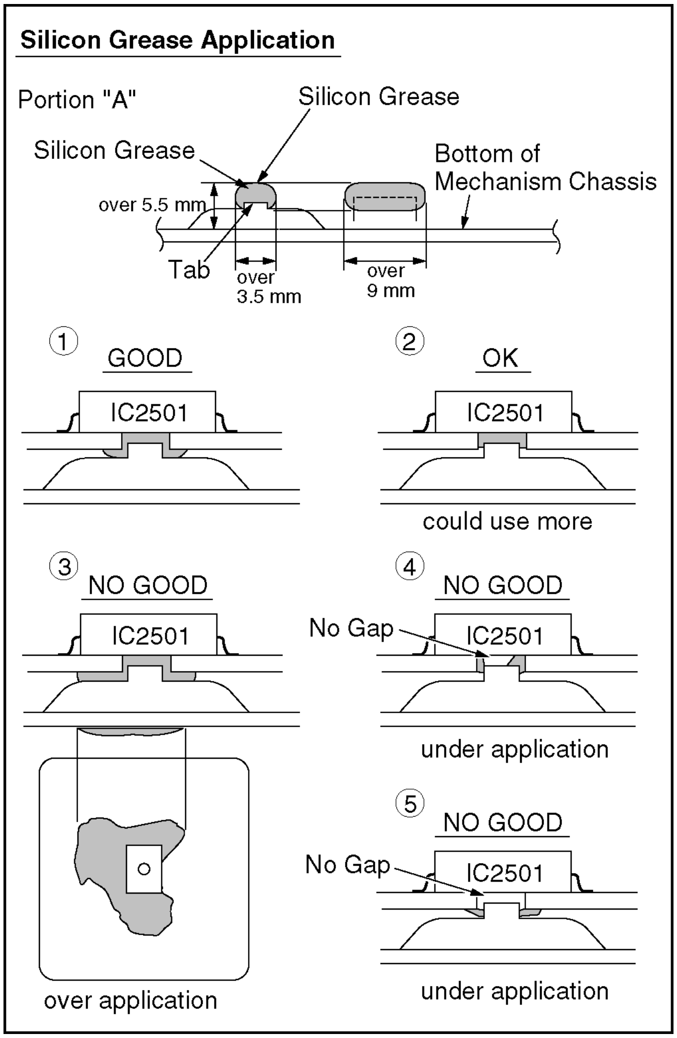


Fig. J6-2

2. **Installation of Capstan Rotor Unit and Oil Seal**
   a. Install the 2 Oil Seals into the Capstan Holder Unit. Then, insert the Capstan Rotor Unit Shaft into the hole of the Capstan Holder Unit so that shaft passes through 2 Oil Seals. Be careful not to scratch the Shaft or Capstan Holder Unit.
   b. Align the bottom of Oil Seal (A) with notch line (A). Align the top of Oil Seal (B) with notch line (B).

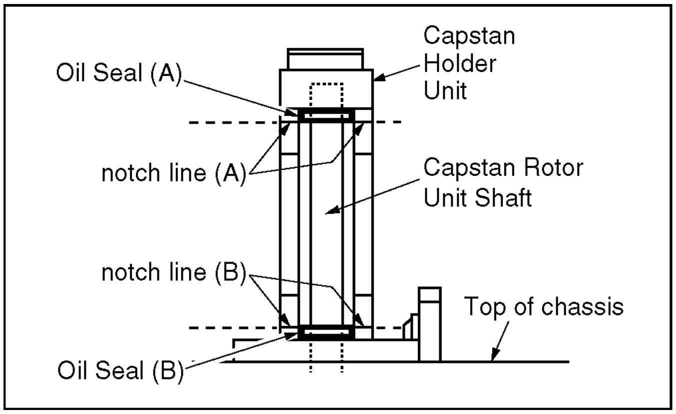


Fig. J6-3

6.2.9. T Loading Arm Unit and S Loading Arm Unit

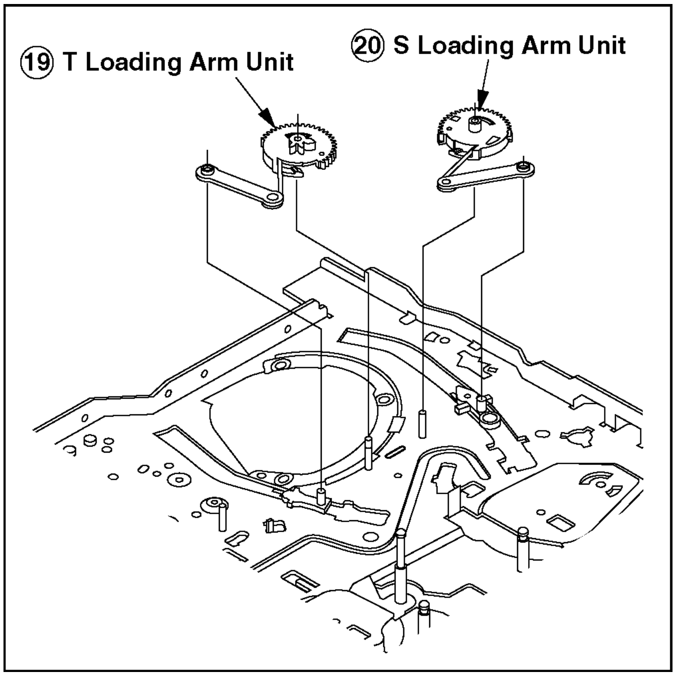


Fig. J7-1

6.2.9.1. Reassembly Notes

1. **Alignment of T Loading Arm Unit and S Loading Arm Unit**
   a. Install the S Loading Arm Unit onto the chassis.
   b. Install the T Loading Arm Unit so that the hole on T Loading Arm Unit is aligned with the hole on S Loading Arm Unit.
   c. Confirm that the holes on the S & T Loading Arm Unit are Through Holes with hole on chassis.

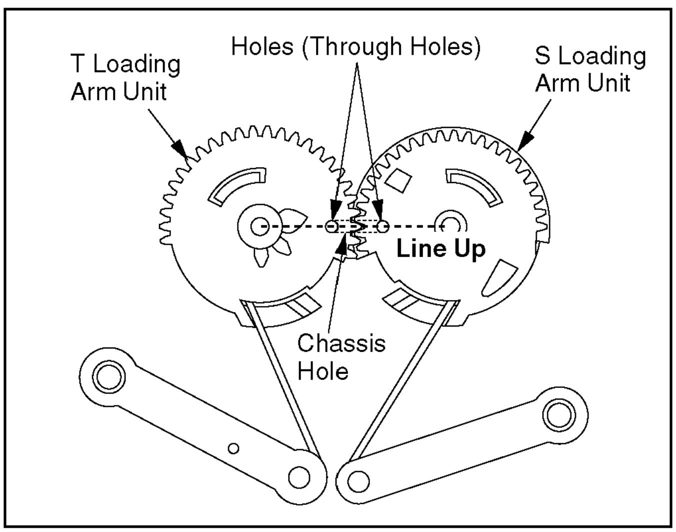


Fig. J7-2

6.2.10. T Brake Unit, Tension Control Arm Unit, T Reel Table, S Reel Table, and Tension Arm Unit

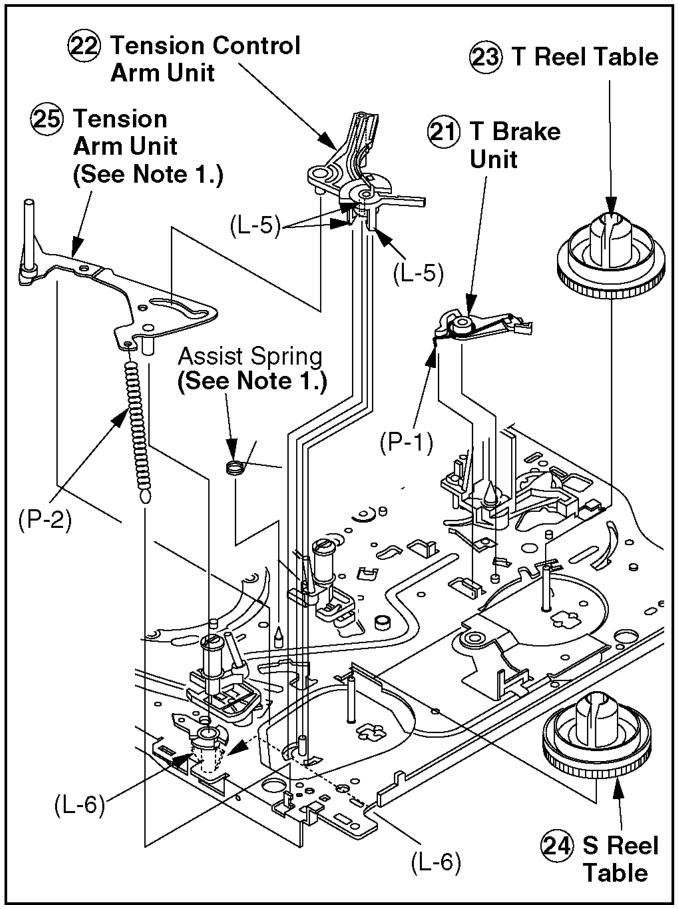


Fig. J8-1

Note:

1. Only For early products; the Assist Spring is used.
   When servicing the Assist Spring or the Tension Arm Unit, replace only the Tension Arm Unit with a new one and remove the Assist Spring.

6.2.10.1. Reassembly Notes

1. **How to distinguish between S Reel Table and T Reel Table**

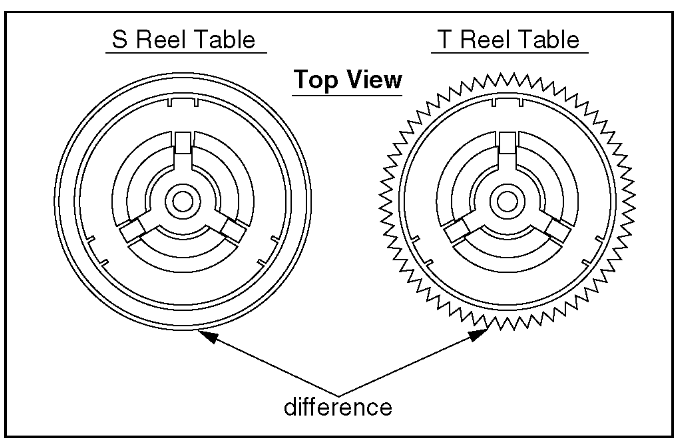


Fig. J8-2

6.2.11. Loading Post Base -T Unit and Loading Post Base -S Unit

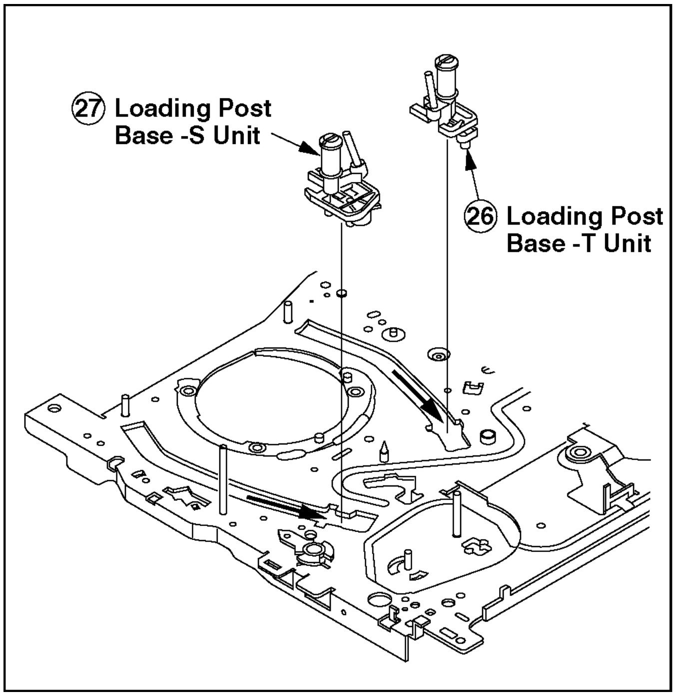


Fig. J9

6.2.12. Opener Piece, Drive Rack Arm, Pinch Arm Unit, P5 Arm Unit, and Intermediate Gear A

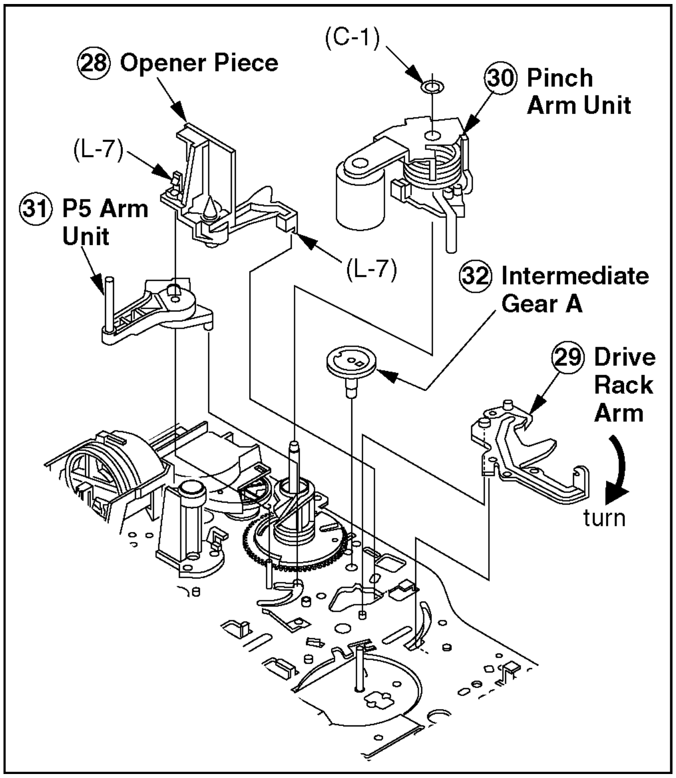


Fig. J10-1

6.2.12.1. Reassembly Notes

1. **Installation/Alignment of Intermediate Gear A, Lift Gear and P5 Arm Unit**
   a. Rotate the Lift Gear so that Hole A on Lift Gear is a Through Hole with a hole on chassis.
   b. Install the Intermediate Gear A so that the hole on Intermediate Gear A is aligned with the hole on Lift Gear.
   c. Install the P5 Arm Unit so that it contacts with the tab of chassis.

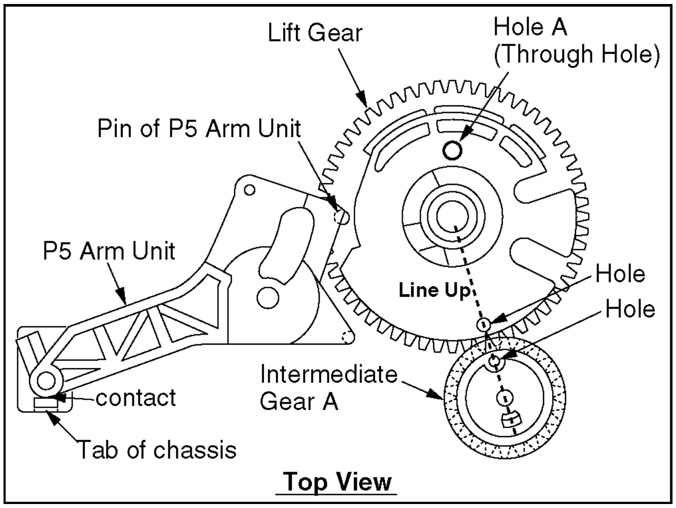


Fig. J10-2

2. **Installation of Opener Piece**
   a. Install the Opener Piece so that the slot of the Opener Piece is inserted to the Pin of Pinch Arm Unit

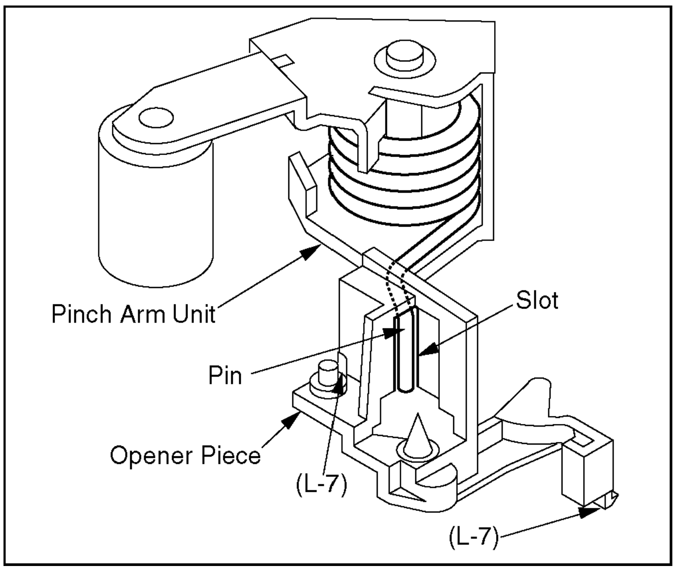


Fig. J10-3

6.2.13. Motor Block Unit, Audio Control Head Unit, Lift Gear, Capstan Holder Unit, Tension Arm Boss, and Cleaner Arm Unit (Model: A, H)

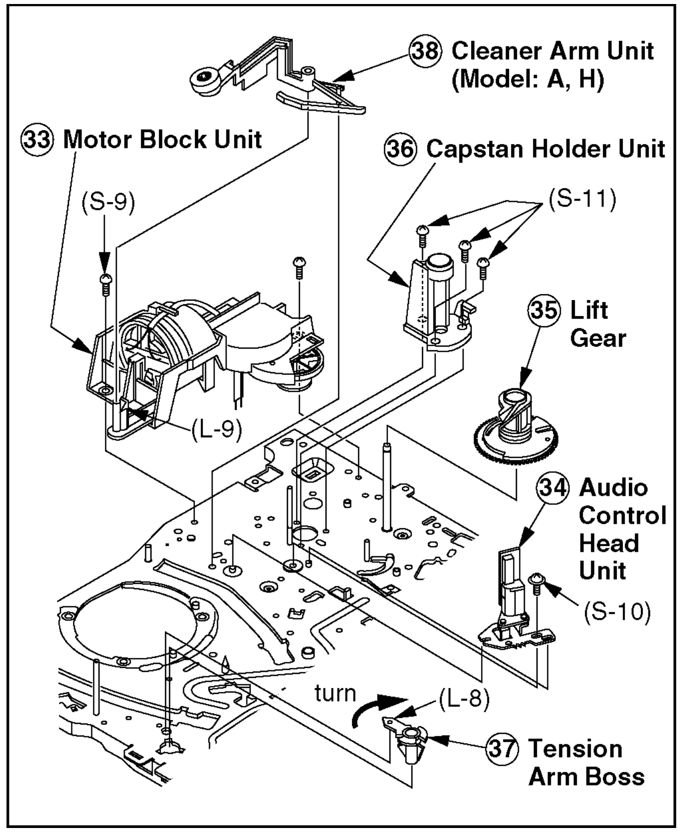


Fig. J11

6.3. CASSETTE UP ASS'Y SECTION

This chart indicates Step/Location No. of Parts to be serviced and prior steps to gain access items to be serviced when disassembling. When reassembling, perform the step(s) in the reverse order.

Step/Loc. No.	Prior Step(s)	Part	Fig. No.	Remove	Alignment/Adjustment
①	------------	Top Plate	K1-1	(L-1), (L-2)	
②	1	Wiper Arm Unit	K1-1	2(L-3)	Gear Alignment
③	1,2	Holder Unit	K1-1	-	
④	------------	Opener Lever	K2	2(L-4)	
⑤	1,2,3,4	Drive Rack Unit	K2	-	
↑ A	↑ B	↑ C	↑ D	↑ E	↑ F

How to read chart shown above:

A: Order of Procedure steps.
When reassembling, perform steps(s) in reverse order.
These numbers are also used as the identification (location) No. of parts in Figures.

B: Steps to be completed prior to the current step.

C: Part to be removed or installed.

D: Fig. No. showing Procedure or Part Location.

E: Identification of part to be removed, unhooked, unlocked, released, unplugged or unsoldered.
(S-1) = Screw (S-1), (L-1) = Locking Tab (L-1),
(W-1) = Washer (W-1), (P-1) = Spring (P-1),
(C-1) = Cut Washer (C-1)

F: Alignment/Adjustment which is required when installing or replacing each Parts.

6.3.1. Top Plate, Wiper Arm Unit, and Holder Unit

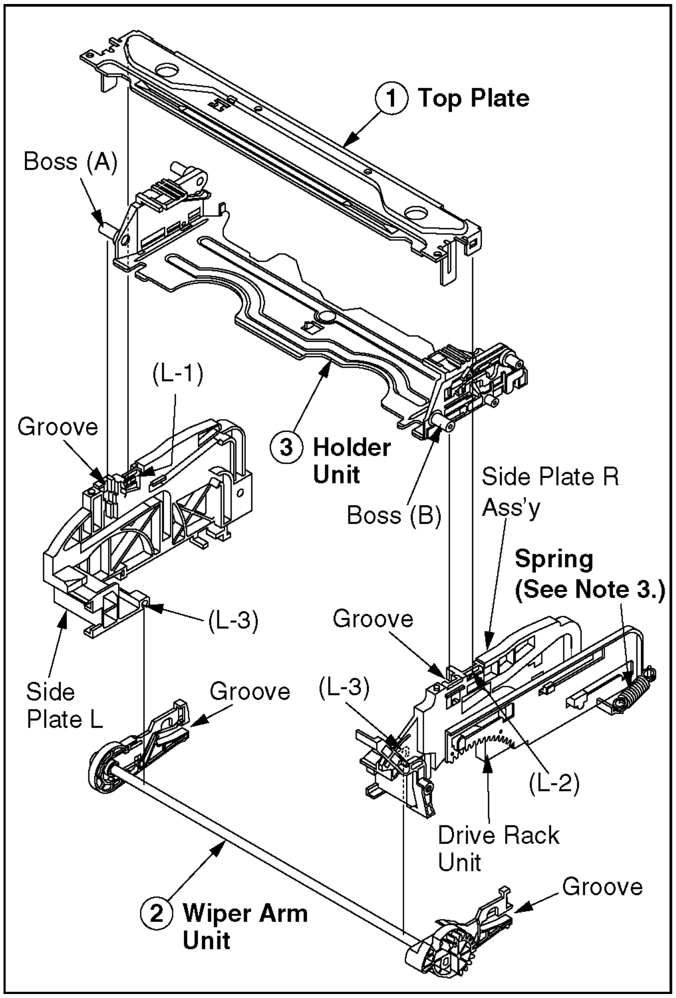


Fig. K1-1

6.3.1.1. Reassembly Notes

1. **Alignment of Wiper Arm Unit and Drive Rack Unit**
   a. Slide the Drive Rack Unit to the far right as indicated by the arrow.
   b. Install the Wiper Arm Unit so that the hole on the Wiper Arm Unit is aligned with the hole on the Drive Rack Unit.

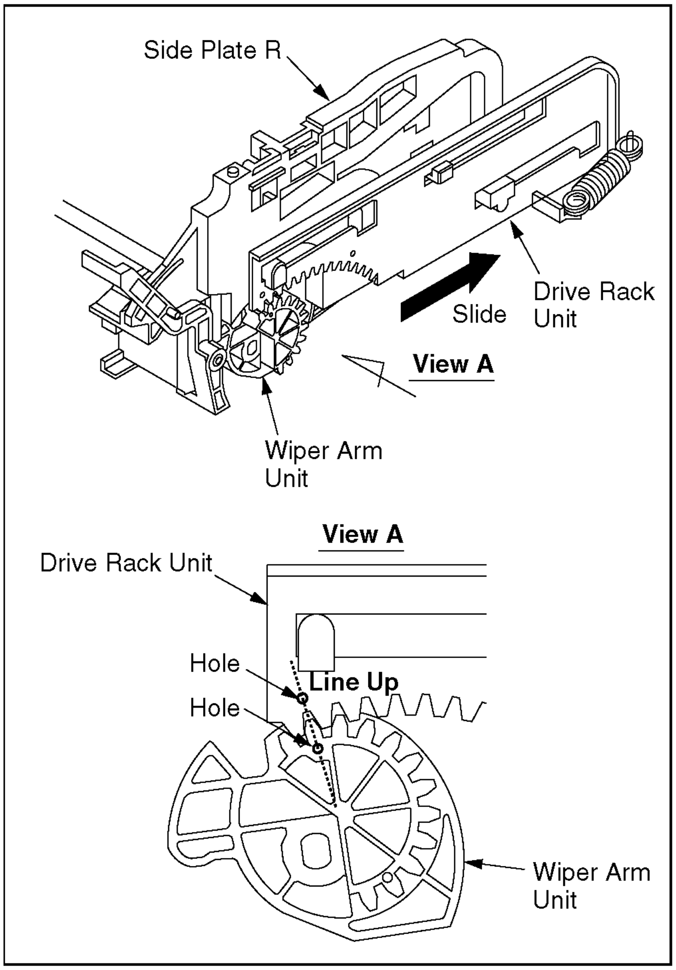


Fig. K1-2

2. **Installation of Holder Unit**
   a. Turn the Wiper Arm Unit so that the grooves on each end are aligned with the each groove on Side Plate L and R.
   b. Insert Holder Unit boss (A) and (B) into the grooves as shown in Fig. K1-1.
   c. Finally, in the **EJECT** Position, confirm that the protrudence on the Wiper Arm Unit is aligned with the indentation on the Drive Rack Unit.

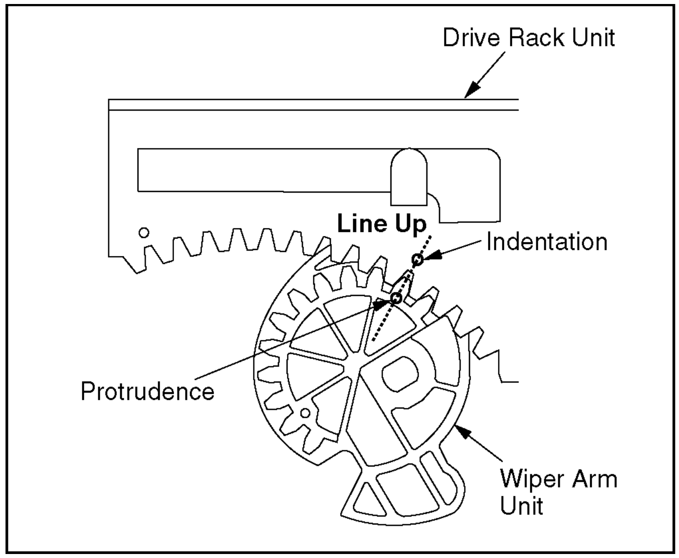


Fig. K1-3

3. Make sure to hook the spring to the Drive Rack Arm of Mechanism chassis.

6.3.2. Opener Lever and Drive Rack Unit

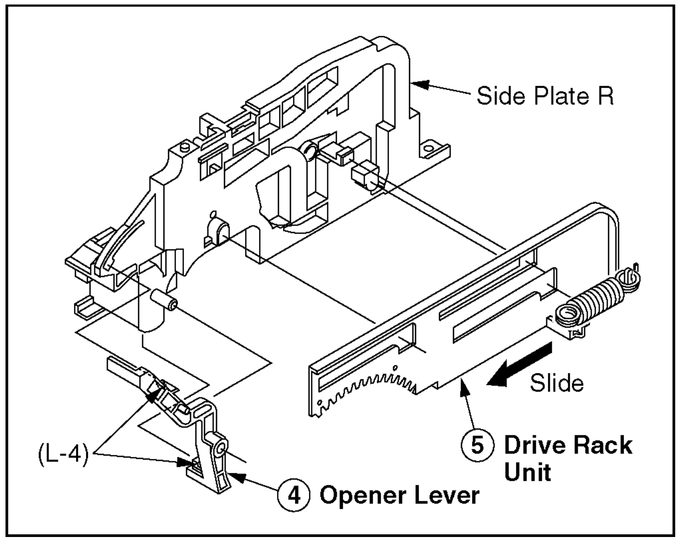
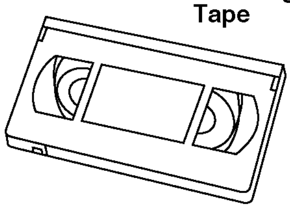


Fig. K2

7 ADJUSTMENT PROCEDURES

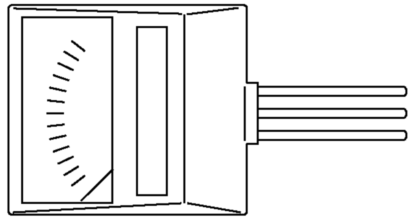
7.1. SERVICE FIXTURES AND TOOLS

VFMS0003H6 **VHS Alignment Tape**

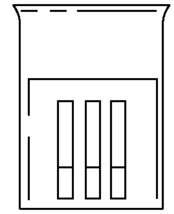


Video	Color Bar & Monoscope
Audio	6kHz(MONO)

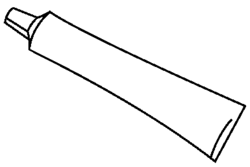
Back Tension Meter (Made in USA., Purchase Locally)



VFK27 **Head Cleaning Stick**



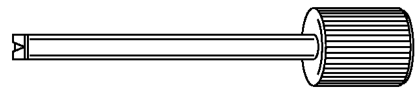
VFK1301 **Silicon Grease**



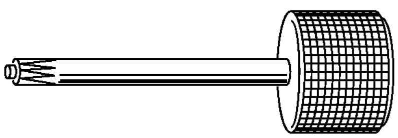
VFKS0081 **Grease**



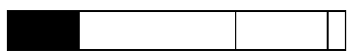
VFK0329 **Post Adjustment Driver**



VFK0330 **H-Position Adjustment Driver**



TSM10032-2 **Permalloy Magnetic Strip**



(Model: H, I, J, K, L)

7.2. MECHANICAL ADJUSTMENT

7.2.1. CLEANING PROCEDURE FOR THE UPPER CYLINDER UNIT

1. While slowly turning the Upper Cylinder Unit counterclockwise by hand, gently rub the Video Heads with a Head Cleaning Stick (VFK27) moistened with Ethanol.

   When using a Cleaning Cassette, make sure to use "DRY" type only and be aware that excessive use can shorten head life.

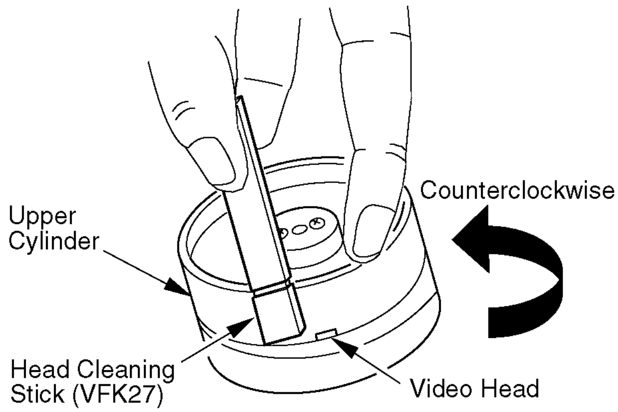


Fig. M1

Note:

a. Do not rub vertically or apply excess pressure to the Video Heads.

   Do not turn the Upper Cylinder Unit clockwise while cleaning.

b. After cleaning, use a Dry Head Cleaning Stick (VFK27) to remove any Ethanol remaining on the cylinder tape path. Otherwise, tape damage will occur.

7.2.2. ADJUSTMENT PROCEDURES

7.2.2.1. BACK TENSION CONFIRMATION

Purpose:	To fine adjust the Back Tension so that the tape runs smoothly with a constant tension.
Symptom of Misadjustment:	1) If the tape tension is less than the specified value, the tape cannot come into proper contact with the Video Heads, resulting in poor picture playback.
	2) If the tape tension is too high, the tape will soon be damaged.
Equipment Required:	Back Tension Meter (Made in U.S.A., Purchase Locally)
	VHS Cassette Tape (120-Minute Tape)
Specification:	20 gf±2.5 gf
	(0.196 N±0.025 N)

1. Play back a T120 cassette tape from the beginning for approx. 10 to 20 seconds to stabilize tape movement.
2. Insert a Tension Meter into tape path and measure the back tension.

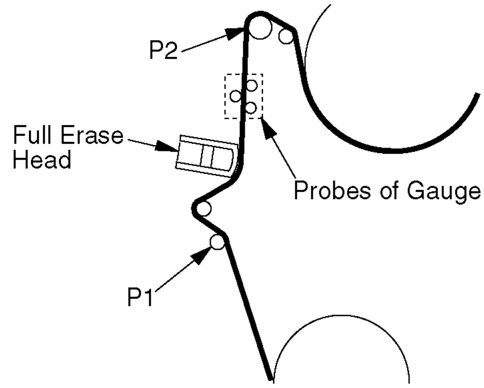


Fig. M2-1

3. If the reading is out of specification, make sure that there is no dust or foreign material between the Brake Pad of Tension Control Arm Unit and the S Reel Table.

   After cleaning, the reading of tension measurement is still out of specification, replace the Tension Arm Unit and the Tension Control Arm Unit.

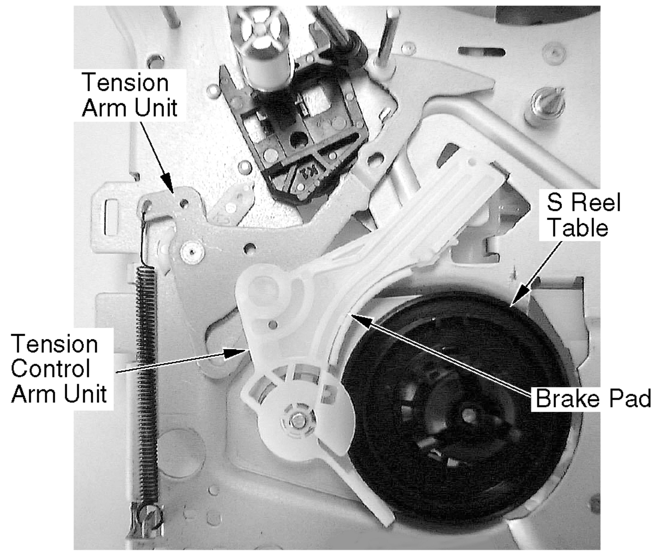


Fig. M2-2

Note:

a. Be sure that the three probes of the meter are all in solid contact with the tape, but not touching any other parts of the mechanism.

b. It is recommended that measurements should be repeated at least three (3) times because the tension meter is very sensitive to external vibrations.

7.2.2.2. MR HEAD GAP ADJUSTMENT

Purpose:	To properly pick up the FG Signal.
Symptom of Misadjustment:	If the FG Signal is not properly picked up, Servo Operation cannot be achieved.
Equipment Required:	Oscilloscope
Specification:	0.1 mm ~ 0.13 mm

1. Remove the VCR Chassis Unit and then place it upside down.
2. Remove the TV/VCR Main C.B.A.
3. Slightly loosen Screw (A). Then set the Screwdriver (Phillips Driver) into the Hole (A). Turn the screwdriver clockwise until the MR Head touches the rotor. Then turn it slightly counterclockwise to make the clearance as specified.
4. Tighten Screw (A).
5. Reinstall the TV/VCR Main C.B.A.

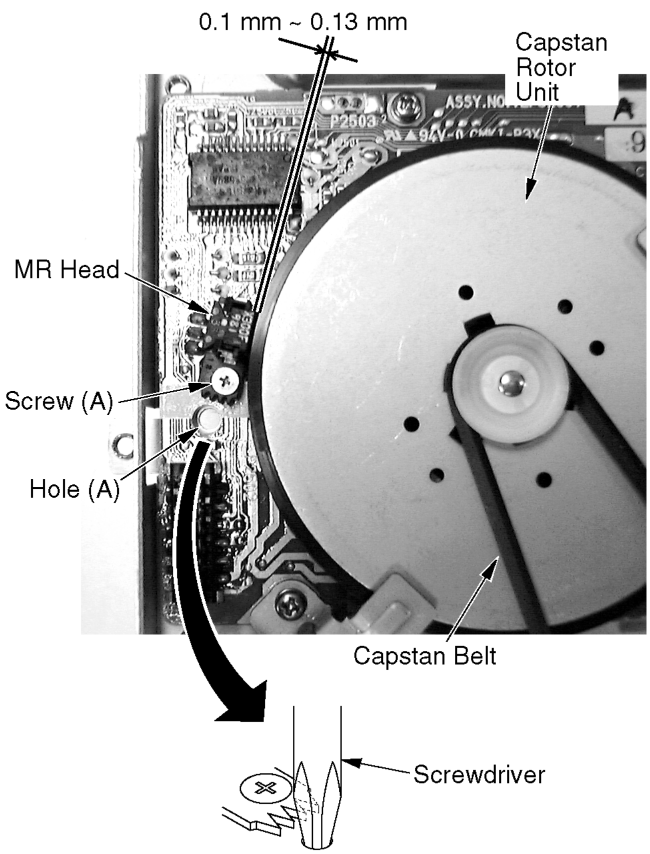


Fig. M3-1

Note:

Do not touch the outside circumference of the rotor surface with any tool and keep magnetic material away from the rotor magnet (especially metal particles).

Confirmation of Signal Level

1. Place the unit in Service Position (2). Refer to "SERVICE POSITION" in SERVICE NOTES.
2. Supply a Video Signal to the video input jack.
3. Insert a cassette tape and place the unit in SLP recording mode.
4. Connect the oscilloscope to Pin 9 of P6201 on the TV/VCR Main C.B.A. Confirm that the signal level is greater than 20 mV [P-P].

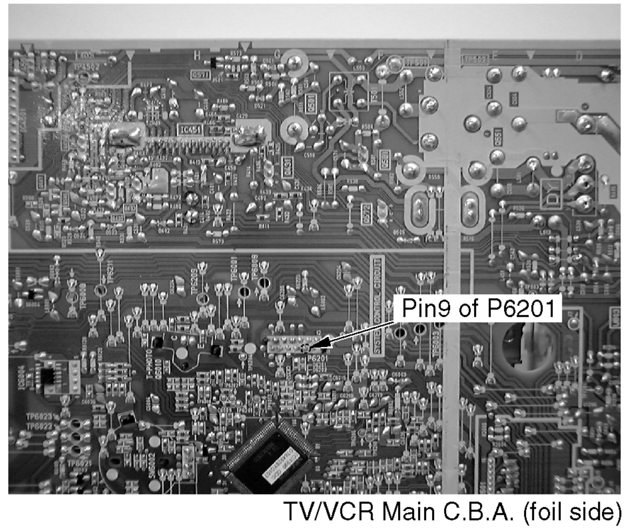


Fig. M3-2

7.2.2.3. TAPE INTERCHANGEABILITY ADJUSTMENT

Note:

To perform these adjustment/confirmation procedures, set the tracking to the neutral position.

Equipment Required:	Dual Trace Oscilloscope
	VHS Alignment Tape (VFMS0003H6)
	Post Adjustment Driver (VFK0329)
	H-Position Adjustment Driver (VFK0330)

7.2.2.3.1. ENVELOPE OUTPUT ADJUSTMENT

The height of the P2 and P3 Posts replacement part is preadjust at the factory.

Purpose:	To achieve a satisfactory picture and secure precise tracking.
Symptom of Misadjustment:	If the envelope is output poorly, much noise will appear in the picture. Then the tracking will lose precision and the playback picture will be distorted by any slight variation of the tracking control circuit.
Equipment Required:	Post Adjustment Driver (VFK0329)

1. Place a jumper between TP6003 and +5V(TP6009) on the TV/VCR Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the TV/VCR Main C.B.A. Use TP6205 as a trigger.
5. Confirm that the RF envelope is flat enough (V1/V-max. is 0.7 or more). If not, with Post Adjustment Driver, adjust P2 and P3 post height so that the envelope waveform becomes as flat (V1/V-max. is 0.7 or more) as possible (No envelope drop). If the envelope drop appears on the left-half of the waveform, adjust P2 post height. If the envelope drop appears on the right-half of the waveform, adjust P3 post height.

   CAUTION:

   Overtightening P2 and P3 posts may cause the threads to strip.

   Note:

   It will be possible to confirm Step 5 according to following steps.

   a. Press the Tracking Control Up or Down button on remote control. Make sure that the envelope waveform remains flat. If not, readjust P2 and/or P3 post heights.

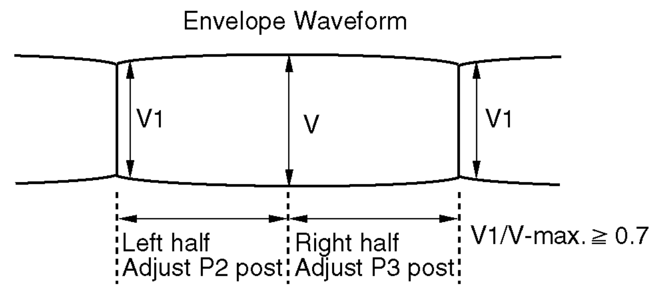


Fig. M4-1

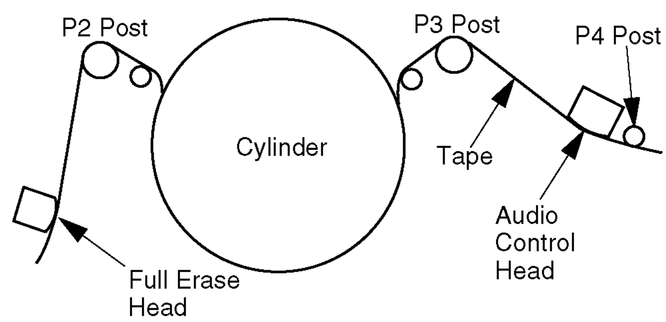


Fig. M4-2

6. After adjustment, confirm that the tape travels without curling at P2 and P3 posts.

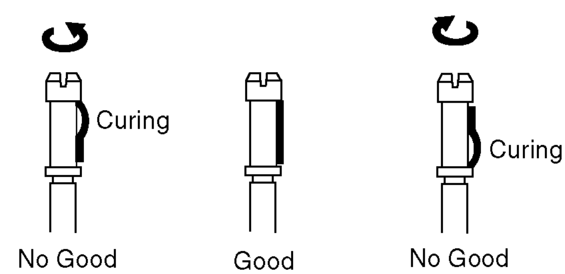


Fig. M4-3

7. Remove the jumper after completing the adjustment procedure.

7.2.2.3.2. AUDIO CONTROL HEAD TILT ADJUSTMENT

Purpose: To confirm that the tape runs smoothly. In particular, confirm that the tape properly picks up the Audio Signal at the upper part of the head and the Control Signal at the lower part of the head.

Symptom of Misadjustment: If the tilt of the Audio Control Head is poorly adjusted, the tape will eventually be damaged. An intermittent Blue screen may be seen in Playback.

1. Play back a T120 cassette tape and check that the tape travels smoothly between the upper and lower guides of the P4 post.
2. If necessary, adjust Black Screw (B) clockwise until the tape begins to curl at the lower edge of the P4 post. Then adjust the screw counterclockwise until the curling is eliminated.

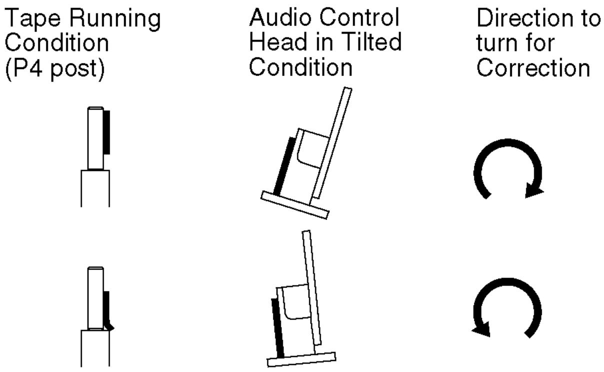


Fig. M5

7.2.2.3.3. AUDIO CONTROL HEAD HEIGHT ADJUSTMENT

The height of the Audio Control Head replacement part is preset at the factory.

Purpose: To be sure the tape runs properly along the Control Head.

Symptom of Misadjustment: If the control signal is not properly picked up, Servo Operation cannot be achieved. A Blue screen will be seen in Playback.

This confirmation is required when the Audio Control Head is replaced.

1. Play back a T120 cassette tape and check that the lower edge of the tape runs approximately 0.25 mm above the lower edge of the Audio Control Head.
2. If necessary, adjust Black Screws (A) and (B) clockwise to lower the tape or counterclockwise to raise.

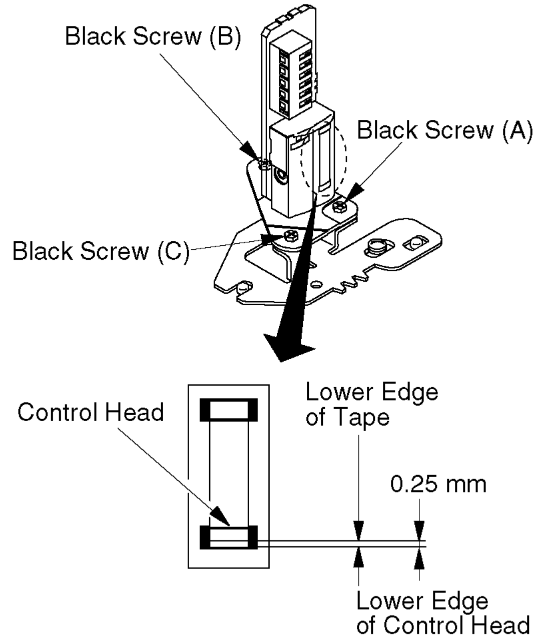


Fig. M6

7.2.2.3.4. AUDIO CONTROL HEAD AZIMUTH ADJUSTMENT

Purpose: To adjust the position and height of the Audio Control Head so that it meets the tape tracks properly.

Symptom of Misadjustment: If the position of the Audio Control Head is not properly adjusted, the Audio S/N Ratio is poor.

1. Connect the oscilloscope to the TP4002 on the TV/VCR Main C.B.A.
2. Play back the 6 kHz Monaural Audio portion of the alignment tape.
3. Adjust Black Screw (C) on the Audio Control Head base so that the output level is at maximum.

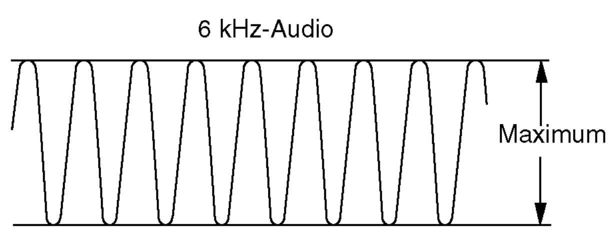


Fig. M7

4. Confirm the height of the Audio Control Head is proper. If not, readjust Black Screws (A) and (B).

7.2.2.3.5. AUDIO CONTROL HEAD HORIZONTAL POSITION ADJUSTMENT

Purpose: To adjust the Horizontal Position of the Audio Control Head.

Symptom of Misadjustment: If the Horizontal Position of the Audio Control Head is not properly adjusted, a maximum envelope cannot be obtained at the Neutral Position of the Tracking Control Circuit.

1. Place a jumper between TP6003 and +5V(TP6009) on the TV/VCR Main C.B.A. to defeat Auto Tracking.
2. Eject the tape and insert it again to access the Neutral Tracking position.
3. Play back the alignment tape.
4. Connect the oscilloscope to TP3002 on the Video Signal Process Section of the TV/VCR Main C.B.A. Use TP6205 as a trigger.
5. Loosen the Black Screw (D) and tighten it slightly. Set the H-Position Adjustment Driver into the Hole (A). Then slowly turn the fixture either clockwise or counterclockwise so that the envelope is at maximum.

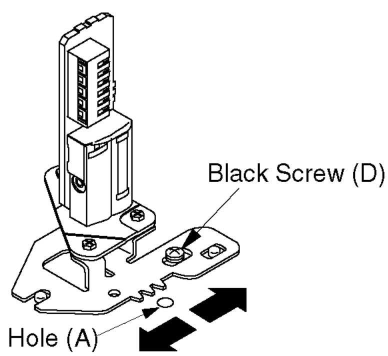


Fig. M8

6. Tighten Black Screw (D).
7. Remove the jumper between TP6003 and +5V(TP6009).

Note:

Old type of H-Position Adjustment Driver (VFK0136) can be used for this adjustment.

7.3. ELECTRICAL ADJUSTMENT

7.3.1. TEST EQUIPMENT

To do all of these electrical adjustments, the following equipment is required.

1. Dual-Trace Oscilloscope
   Voltage Range: 0.001 V to 50 V/Div.
   Frequency Range: DC to 50 MHz
   Probes: 10:1, 1:1
2. NTSC Video Pattern Generator
3. DVM (Digital Volt Meter)
4. MTS/SAP Signal Generator
   (TV Multi-Channel Sound Modulator (U.S.A.))
5. Frequency Counter
   Frequency Range: 0 to 150 MHz
6. Plastic Tip Driver and Non-Metal Driver
7. Isolation Transformer (Variable)
8. VHS Alignment Tape (VFMS0003H6)
9. Degaussing Coil
10. White Pattern Generator
11. Audio Generator

7.3.2. HOW TO READ THE ADJUSTMENT PROCEDURES

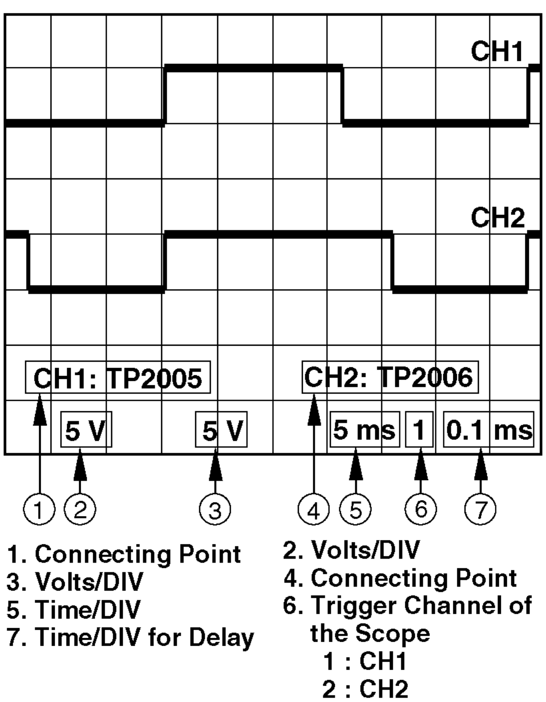


Fig. E1

7.3.3. 115 V ADJUSTMENT

Purpose:	To set the optimum voltage.
Symptom of Misadjustment:	The picture is dark and unit does not operate correctly.
Test Point:	**TP1203, TP804 (TV/VCR Main C.B.A.)**
Adjustment:	**R850 (TV/VCR Main C.B.A.)**
Specification:	**115 VDC±0.2 VDC**
Input:	Video Input Jack, Monoscope Pattern Signal
Mode:	STOP
Equipment:	DVM (Digital Volt Meter)

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the DVM (Digital Volt Meter) to TP1203 (+) and TP804 (-) on the TV/VCR Main C.B.A.
3. Adjust R850 (115 V ADJ) so that the voltage is 115 VDC±0.2 VDC.

7.3.4. STEREO/SAP SEPARATION ADJUSTMENT (MODEL: L)

Purpose: To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment: The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

Test Point: TP9001 (Audio C.B.A.)

Adjustment: R9001, R9008 (Audio C.B.A.)

Specification: minimum level

INPUT: Antenna Input Terminal
MTS (ONLY L CH)
300 Hz±5 Hz, 3 kHz±5 Hz
14 % or 7 % Modulating

Mode: STEREO audio (TV)

Equipment: Oscilloscope, MTS/SAP Signal Generator

1. Set to TV mode, and then set to STEREO audio.
2. Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.
   Then, set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   300 Hz±5 Hz
   14 % or 7 % Modulating
3. Connect the Oscilloscope to TP9001 on the Audio C.B.A.
4. Adjust R9001 (SEP (L)) on the Audio C.B.A. so that the signal level of TP9001 is minimum.
5. Set the MTS/SAP Signal Generator as follows.
   MTS (ONLY L CH)
   3 kHz±5 Hz
   14 % or 7 % Modulating
6. Adjust R9008 (SEP (H)) on the Audio C.B.A. so that the signal level of TP9001 is minimum.

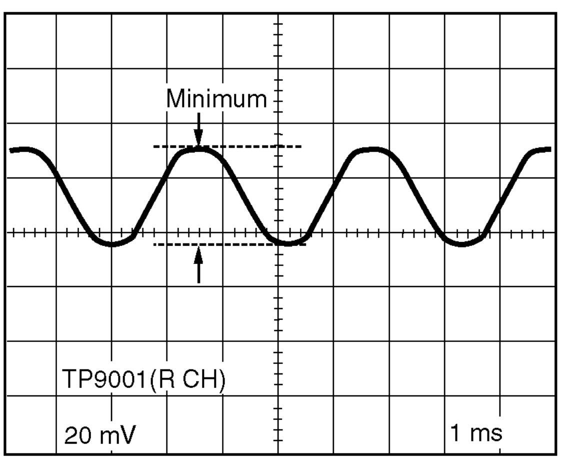


Fig. E2

7.3.5. SEPARATION ADJUSTMENT (Model: L)

Note:

Be sure to perform this adjustment after STEREO/SAP SEPARATION ADJUSTMENT are completed.

Purpose: To separate the L and R Channels of Stereo Signal.

Symptom of Misadjustment: The L and R Channels of Stereo Signal will not be separated properly resulting in no stereophonic effect.

Test Point: TP4202 (Audio C.B.A.)

Adjustment: R9003 (Audio C.B.A.)

Specification: minimum level

INPUT: Antenna Input Terminal
MTS (ONLY L CH)
300 Hz±5 Hz
14 % or 7 % Modulating

Mode: STEREO audio (TV)

Equipment: Oscilloscope, MTS/SAP Signal Generator

1. Connect the RF OUTPUT of the MTS/SAP Signal Generator to the Antenna Input Terminal.
2. Connect the Oscilloscope to TP4202(R CH) on the Audio C.B.A.
3. Set to TV mode, and then set to STEREO audio.
4. Adjust R9003 on the Audio C.B.A. so that the signal level is minimum.

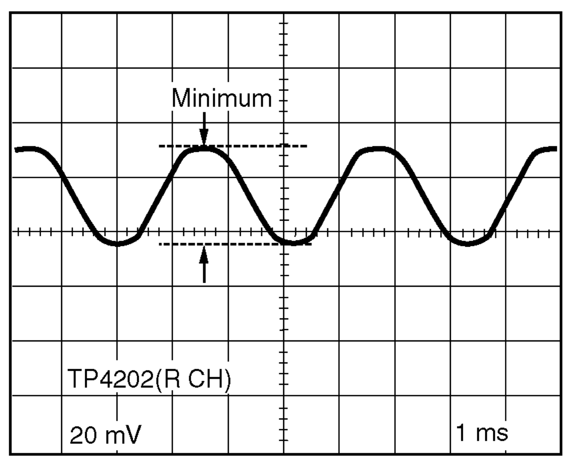


Fig. E3

7.3.6. FM VCO ADJUSTMENT (MODEL: L)

Purpose: To set VCO free run frequency.

Symptom of Misadjustment: Even when stereophony is received, only monaural sound will be output.

Test Point: Pin 32 of P4204, TP9201 (Audio C.B.A.)

Adjustment: R9206 (Audio C.B.A.)

Specification: 38.0 kHz±50 Hz

Input: ----------

Mode: STEREO audio (FM Radio)

Equipment: Frequency Counter

1. Connect Pin 32 of P4204 on Audio C.B.A. to GND.

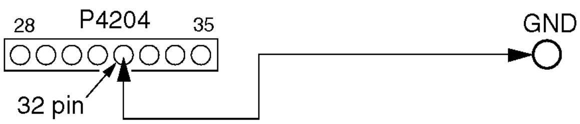


Fig. E4-1

2. Connect TP9201 on Audio C.B.A. to GND through a resistor (3.3 kΩ). Then, connect Frequency Counter to TP9201.

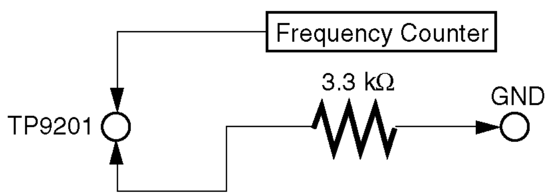


Fig. E4-2

3. Adjust R9206 (FM VCO) so that the frequency is 38.0 kHz ±50 Hz.

7.3.7. EVR (Electronic Variable Register) ADJUSTMENT WITH THE REMOTE CONTROL

This unit has electronic technology using I2C Bus concept.

The following control functions are adjusted by using "On Screen Displays" and the remote control instead of adjusting mechanical controls (VR).

Control functions	※2 Address	Range	Default
SUB COLOR	00	C0 – FF, 00 – 3F	00
SUB TINT	01	E0 – FF, 00 – 1F	00
SUB BRIGHT	02	C0 – FF, 00 – 3F	F0
CONTRAST	03	C1 – FF, 00	00
SUB SHARPNESS	04	E0 – FF, 00 – 1F	00
R CUT -OFF	05	00 – 7F	1E
G CUT -OFF	06	00 – FD	3C
B CUT -OFF	07	00 – FD	3C
G DRIVE	08	00 – 7F	40
B DRIVE	09	00 – 7F	40
SUB CONTRAST	0A	00 – 0F	06
H CENTER	0B	00 – 0F	08
SUB V	0C	00 – 03	00
V SIZE	0D	00 – 7F	40
V POSITION ※3	0E	00 – 7F	40
ANR CTL	10	00 – EF	89
PICTURE CTL	11	00 – EF	86
VV COLOR ※1	12	C0 – FF, 00 – 3F	00
VV TINT ※1	13	E0 – FF, 00 – 1F	00
VV SHARPNESS	14	E0 – FF, 00 – 1F	F8
PG SHIFTER	15	01 – FD	80
FM ANT ※4	18	00 – 01	00/01

Bold-faced letters → Control functions which need to be adjusted.

Note:

※1 After "SUB COLOR/SUB TINT ADJUSTMENT" is complete, perform as follows.
- Write the same value of SUB COLOR (Address 00) to VV COLOR (Address 12).
- Write the same value of SUB TINT (Address 01) to VV TINT (Address 13) .

※2 Address is not displayed on the TV screen. Other Addresses except above are not used.

※3 For Model: H, I, J, K, L V POSITION are not required in EVR adjustment.

※4 In models for USA, set the Default value of FM ANT to "00."
In models for CANADA, set the Default value of FM ANT to "01."

7.3.7.1. EVR ADJUSTMENT ITEM

The following Items need to be adjusted for EVR adjustment.

- PG SHIFTER ADJUSTMENT
- SUB CONTRAST ADJUSTMENT
- CUT OFF, DRIVE ADJUSTMENT
- SUB COLOR/SUB TINT ADJUSTMENT
- V. HEIGHT/H. POSITION ADJUSTMENT
- WHITE BALANCE ADJUSTMENT
- SUB BRIGHTNESS ADJUSTMENT

7.3.7.2. HOW TO ENTER EVR ADJUSTMENT MODE

Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds with no cassette inserted.

The adjustment overlay will appear.

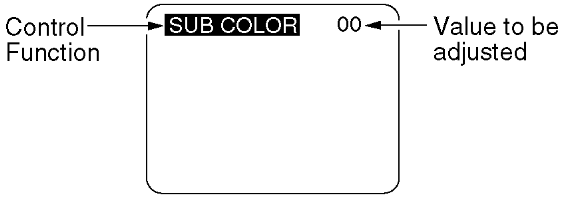


Fig. E5-1

7.3.7.2.1. How to adjust:

1. Press CH UP/DOWN key on the remote control to select control function to be adjusted.

   Important Note:

   Make a note of the original value of the controls before modifying in case the wrong control is adjusted.

2. Press VOL UP/DOWN key on the remote control so that the shaded area moves to the value.

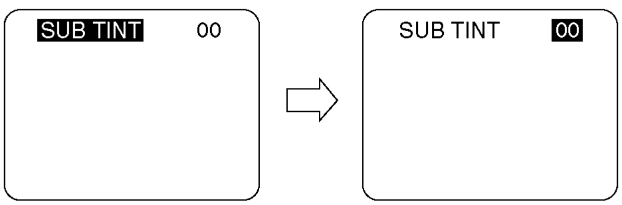


Fig. E5-2

3. Press CH UP/DOWN key on the remote control to adjust the value of the selected control.

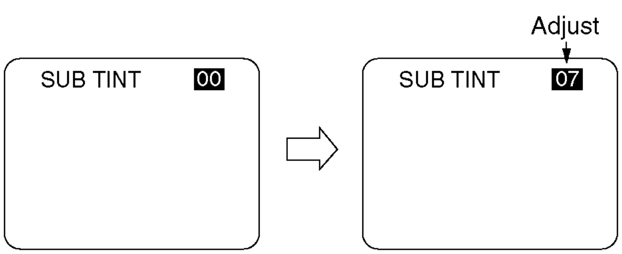


Fig. E5-3

   Note:

   You can select a desired channel by using the numbered keys on the remote control in EVR adjustment mode.

4. Press VOL UP/DOWN key on the remote control so that the shaded area moves to the control function.

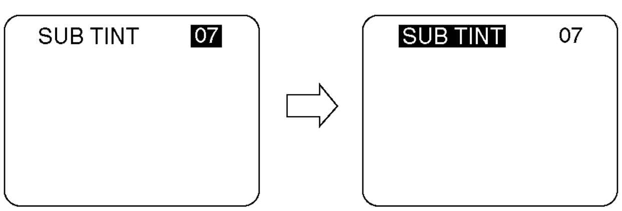


Fig. E5-4

5. Press CH UP/DOWN key on the remote control to select a control function for the next adjustment if necessary.

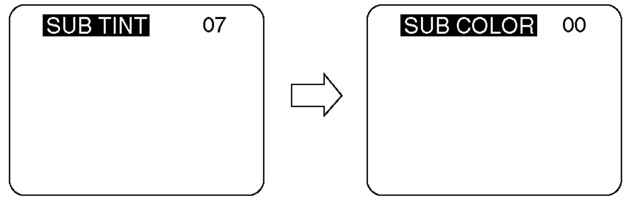


Fig. E5-5

7.3.7.2.2. How to release from EVR Adjustment Mode:

Press and hold STOP, PLAY, and VOL DOWN buttons on the unit together over 5 seconds again or press the POWER button OFF.The adjusted value will be written to Memory IC (IC6004).

7.3.7.3. HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE

1. Enter EVR adjustment mode.
2. Insert the VHS Alignment Tape and playback in SP mode.

   The adjustment overlay will appear.

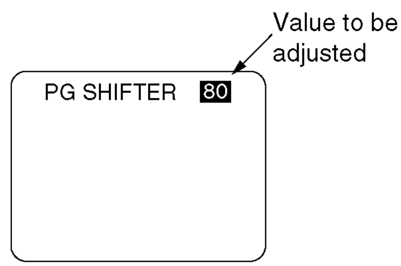


Fig. E5-6

7.3.7.3.1. How to adjust:

Press CH UP/DOWN key on the remote control to adjust the value.

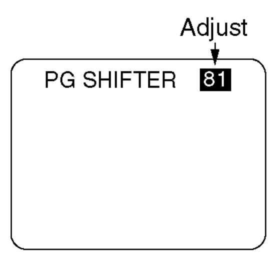


Fig. E5-7

7.3.7.3.2. How to release from EVR PG Shifter Adjustment Mode:

Press STOP button or press the POWER button OFF.

The adjusted value will be written to Memory IC (IC6004).

7.3.7.4. HOW TO ENTER SERVICE MODE

1. Enter EVR adjustment mode.
2. Press DISPLAY key on the remote control for collapse scan.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value for adjustments you will proceed.

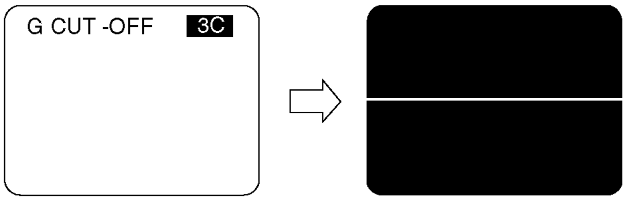


Fig. E5-8

7.3.7.4.1. How to release from Service Mode:

Press DISPLAY key again on the remote control.

7.3.8. PG SHIFTER ADJUSTMENT

Purpose:	Determine the Video Head Switching Point during Playback.
Symptom of Misadjustment:	May cause Head Switching Noise and/or Vertical Jitter.
Test Point:	**TP3001 (TV/VCR Main C.B.A.), TP6205 (TV/VCR Main C.B.A.)**
Adjustment:	**PG SHIFTER (EVR)**
Specification:	**T = 6 H±1 H (0.38 ms±0.06 ms)**
Input:	----------
Mode:	SP Playback
Equipment:	Oscilloscope, VHS Alignment Tape (VFMS0003H6)

1. Enter EVR PG Shifter Adjustment mode, refer to "HOW TO ENTER EVR PG SHIFTER ADJUSTMENT MODE."
2. Connect the channel-1 scope probe to TP3001 and the channel-2 scope probe to TP6205. Use TP6205 as a trigger.
3. Adjust value so that the trailing edge of the head switching pulse is placed 6 H±1 H (0.38 ms±0.06 ms) before the start of the vertical sync pulse.
4. Release EVR PG Shifter Adjustment Mode.

   The adjusted value will be written to Memory IC (IC6004).

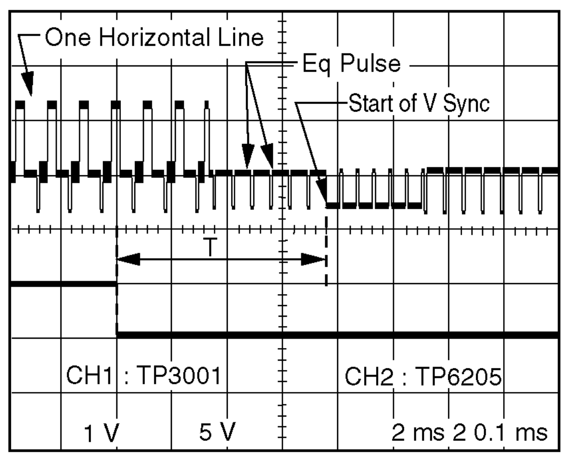


Fig. E6

7.3.9. SUB CONTRAST ADJUSTMENT

Purpose:	To set the optimum sub contrast level.
Symptom of Misadjustment:	The picture is too dark or too light.
Test Point:	**Pin 5 of P6001 (TV/VCR Main C.B.A.) or TP49 (CRT C.B.A.)**
Adjustment:	**SUB CONTRAST (EVR)**
Specification:	**3.0 V[p-p]±0.1 V[p-p]**
Input:	Video Input Jack, Crosshatch Pattern Signal 1 V[p-p] (75 Ω terminated)
Mode:	STOP
Equipment:	Oscilloscope, NTSC Video Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to Pin 5 of P6001 on the TV/VCR Main C.B.A. or TP49 on the CRT C.B.A.
3. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the (D0).
4. Select SUB CONTRAST in EVR adjustment mode and adjust so that the level A is 3.0 V[p-p]±0.1 V[p-p].
5. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

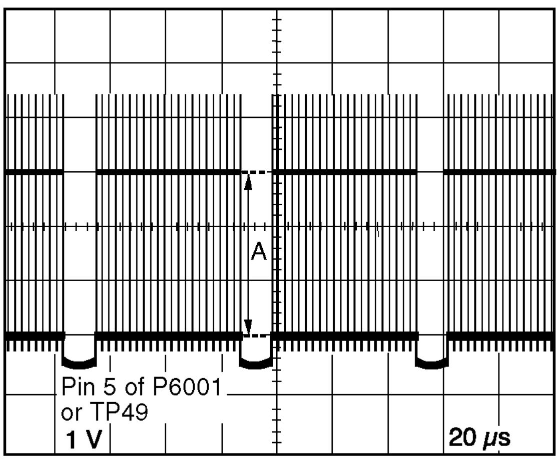


Fig. E7

7.3.10. FOCUS, SCREEN, CUT OFF, DRIVE ADJUSTMENT

Purpose:	To set the optimum Focus and Screen.
Symptom of Misadjustment:	The picture is out of Focus and there will be an improper screen color mix.
Test Point:	**TP50 (CRT C.B.A.)**
Adjustment:	**FOCUS CONTROL (Flyback Transformer),** **SCREEN CONTROL (Flyback Transformer),** **SUB BRIGHT (EVR),** **B DRIVE (EVR),** **R DRIVE (EVR),** **B CUT -OFF (EVR),** **G CUT -OFF (EVR),** **R CUT -OFF (EVR)**
Specification:	**Refer to descriptions below.**
Input:	Video Input Jack Monoscope Pattern Signal
Mode:	STOP
Equipment:	Oscilloscope, NTSC Video Pattern Generator

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP50 on the CRT C.B.A.
   (Use TP47 for GND.)
3. Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.
4. Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.
5. Turn the SCREEN CONTROL on the Flyback Transformer fully counterclockwise.
6. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to HOW TO ENTER SERVICE MODE.)
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is (140 VDC±5 VDC: **Model: A, B, C, D, E, F, G**) or (170 VDC±5 VDC **Model: H, I, J, K, L**).

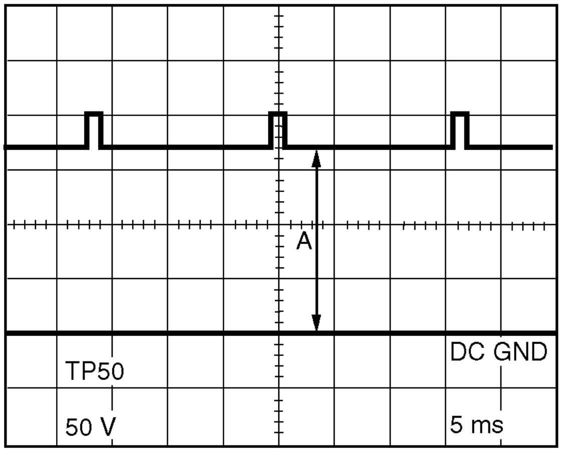


Fig. E8

8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.
9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white.

   For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.
10. Press DISPLAY key on the remote control again to return for full frame scan.
11. Select SUB BRIGHT in EVR adjustment mode and adjust so that the picture has adequate brightness.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

7.3.11. SUB COLOR/SUB TINT ADJUSTMENT

Purpose :	To set the standard color phase.
Symptom of Misadjustment :	Color phase will be shifted.
Test Point:	**Pin 5 of P6001 (TV/VCR Main C.B.A.) or TP49 (CRT C.B.A.)**
Adjustment:	**SUB COLOR (EVR), SUB TINT (EVR)**
Specification:	**C = 1.40 V[p-p]±0.15 V[p-p] (Model: A, B, C, D, E, F, G)** **C = 1.50 V[p-p]±0.15 V[p-p] (Model: H, I, J, K, L)**
Input:	Video Input Jack, Rainbow Color Bar
Mode:	STOP
Equipment:	Oscilloscope, NTSC Video Pattern Generator

1. Supply the Rainbow Color Bar signal to Video Input Jack.
2. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0).
3. Connect the Oscilloscope to Pin 5 of P6001 on the TV/VCR Main C.B.A. or TP49 on the CRT C.B.A.
4. Select SUB TINT in EVR adjustment mode and adjust so that level A and B should be equal in amplitude.

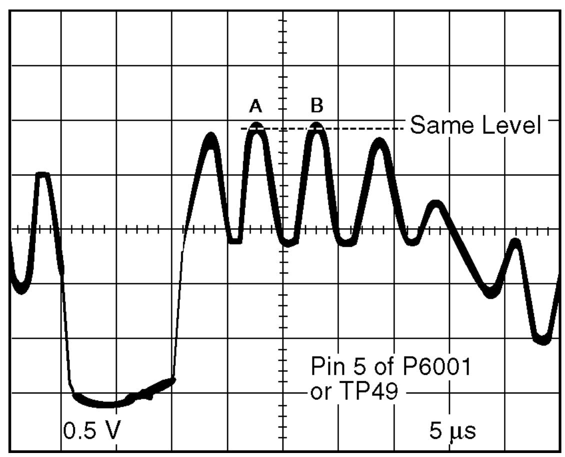


Fig. E9-1

5. Select SUB COLOR in EVR adjustment mode and adjust so that the level C is (1.40 V[p-p]±0.15 V[p-p]: **Model : A, B, C, D, E, F, G**) or (1.50 V[p-p]±0.15 V[p-p]: **Model : H, I, J, K, L**).

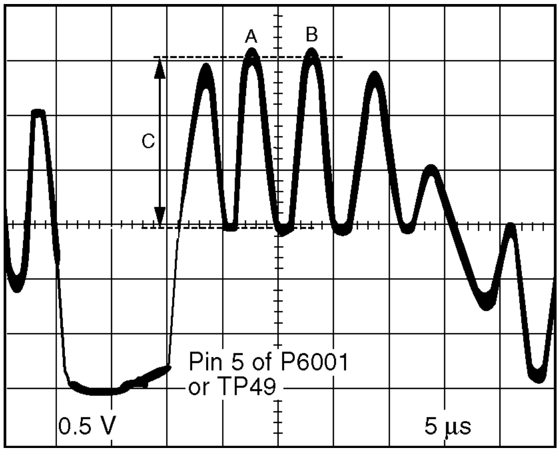


Fig. E9-2

6. Select SUB BRIGHT in EVR adjustment mode and reset to the original value.

Note:
After "SUB COLOR/SUB TINT ADJUSTMENT" is complete, perform as follows.

- Write the same value of SUB COLOR (Address 00) to VV COLOR (Address 12).
- Write the same value of SUB TINT (Address 01) to VV TINT (Address 13).

7.3.12. PURITY ADJUSTMENT

Purpose:	To set the uniform white over the whole screen.
Symptom of Misadjustment:	The white screen will vary from area to area.
Test Point:	----------
Adjustment:	**Pair of 4-Pole Convergence Magnet Rings,** **Pair of 6-Pole Convergence Magnet Rings,** **Pair of Purity Magnet Rings,** **Deflection Yoke (CRT Unit),** **G CUT -OFF (EVR)**
Specification:	**Refer to descriptions below.**
Input:	Video Input Jack, Crosshatch Pattern Signal, White Pattern Signal
Mode:	STOP
Equipment:	Degaussing Coil, NTSC Video Pattern Generator, White Pattern Generator

1. Remove the wedges from the CRT.
2. Slide the Deflection Yoke forward to the end of the CRT neck.

   (Model: A, B, C, D, E, F, G)

   Set the Convergence Yoke as specified.
3. Power the unit "ON" and degauss the CRT by the Degaussing Coil.
4. Supply the Crosshatch Pattern Signal to Video Input Jack.
5. Turn the pair of 4-Pole Convergence Magnet Rings so that B and R at the center of CRT overlap each other.
6. Turn the pair of 6-Pole Convergence Magnet Rings so that B and R which overlapped each other in Step 5 overlap G.
7. Supply a White Pattern Signal to Video Input Jack.
8. Select G CUT -OFF in EVR adjustment mode and adjust it to become to the minimum level. Turn the Pair of Purity Magnet Rings so that the distorted color areas are approximately across from each other.

   Slide the Deflection Yoke back slightly (without rotating it) until the distorted color areas disappear from the screen.
9. Supply a Crosshatch Pattern Signal to Video Input Jack again. Confirm that the Center Bar is at the horizontal center line of the CRT and the V-Center Bar is at the vertical center line of the CRT. Then, tighten the Expansion Screw.
10. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to How to Enter Service Mode.)

    Select G CUT -OFF in EVR adjustment mode and Adjust so that the horizontal line is white.
11. Press DISPLAY key on the remote control again to return for full frame scan. Make sure that the entire screen is white. If not, adjust G DRIVE and B DRIVE in EVR adjustment mode.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

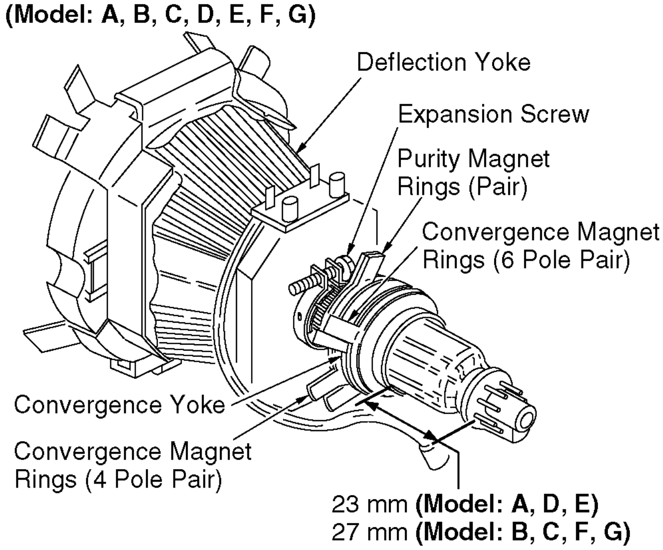


Fig. E10-1

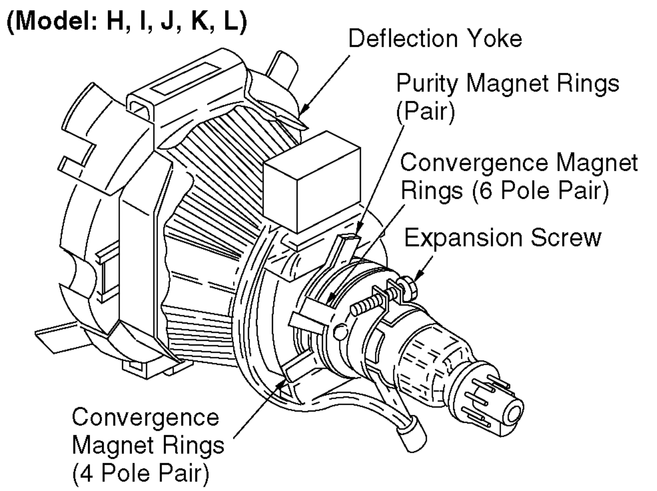


Fig. E10-2

7.3.13. STATIC CENTRAL CONVERGENCE ADJUSTMENT

Purpose:	To set the uniform convergence over the whole screen.
Symptom of Misadjustment:	The convergence on the screen will vary from the center portion to the surrounding edges.
Test Point:	**----------**
Adjustment:	**Pair of 4-Pole Convergence Magnet Rings,** **Pair of 6-Pole Convergence Magnet Rings**
Specification:	**Refer to descriptions below.**
Input:	Video Input Jack, Crosshatch Pattern Signal
Mode:	STOP
Equipment:	NTSC Video Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Turn the Pair of 4 - Pole Convergence Magnet Rings so that B and R, at center of CRT, overlap each other.
3. Turn the Pair of 6 - Pole Convergence Magnet Rings so that B and R, that overlapped each other in step 2 overlaps G.

7.3.14. DYNAMIC CONVERGENCE ADJUSTMENT

Purpose:	To set the uniform convergence over the whole screen.
Symptom Misadjustment:	The convergence on the screen will vary at the sides of the CRT.
Test Point:	**----------**
Adjustment:	**Deflection Yoke (CRT Unit)**
Specification:	**Refer to descriptions below.**
Input:	Video Input Jack, Crosshatch Pattern Signal, White Pattern Signal
Mode:	STOP
Equipment:	NTSC Video Pattern Generator, White Pattern Generator

1. Supply a Crosshatch Pattern Signal to the Video Input Jack.
2. Hold the Deflection Yoke and wiggle it up and down to produce the correct Crosshatch Pattern position.

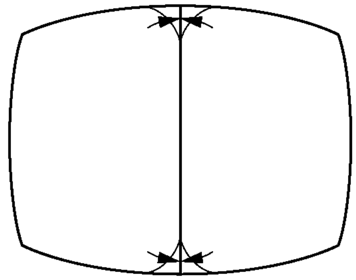


Fig. E11-1

3. Hold Deflection Yoke and wiggle it horizontally (right to left) to produce the correct Crosshatch Pattern position.

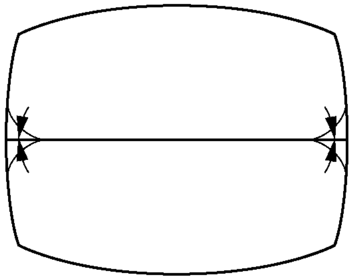


Fig. E11-2

4. Insert three wedges to maintain the correct Crosshatch Pattern Position.

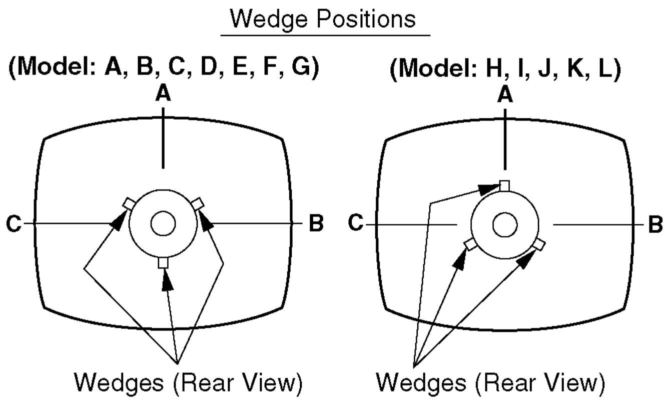


Fig. E11-3

(Confirmation of white)

1. Supply a White Pattern Signal to the Video Input Jack.
2. Confirm that the purity is still correct.
3. If the purity is not acceptable, readjust the purity.
4. **(Model: H, I, J, K, L)**

   If the convergence error is more than 1.5 mm (0.06 inch) from the green dot at each corner, adjust the convergence at that corner with a Permalloy Magnetic Strip. Insert a permalloy strip into the gap between the Deflection Yoke and the CRT along a diagonal line of the CRT bell. Adjust it for the best possible convergence. Use one Permalloy Magnetic Strip in each corner if necessary.

   Permalloy Magnetic Strip Part Number (TSM10032-2).

(Model: H, I, J, K, L)

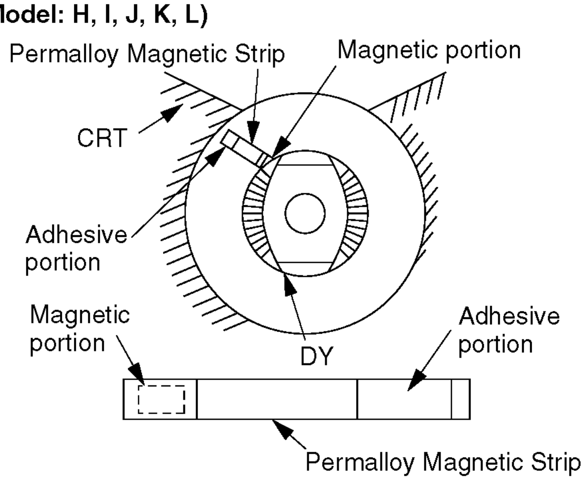


Fig. E11-4

7.3.15. V. HEIGHT/H. POSITION ADJUSTMENT

Purpose :	To set the standard vertical and horizontal picture size.
Symptom of Misadjustment :	The picture size is on the vertical and horizontal axis is abnormal.
Test Point:	**----------**
Adjustment:	**V SIZE (EVR),** **H CENTER (EVR)** **V POSITION (EVR)** **(Model: A, B, C, D, E, F, G)**
Specification:	**Refer to descriptions below.**
Input:	Video Input Jack, Monoscope Pattern Signal
Mode:	STOP
Equipment:	NTSC Video Pattern Generator

(Model: A, B, C, D, E, F, G)

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Select H CENTER in EVR adjustment mode and adjust so that A is approximately equal to width B.
3. Select V SIZE in EVR adjustment mode and adjust so that the top 3rd line is just in view.
4. Confirm that the 10th dotted line is in view and that the 11th line is out of view.

   If the line are not positioned correctly, select V POSITION in adjustment mode and adjust correctly.

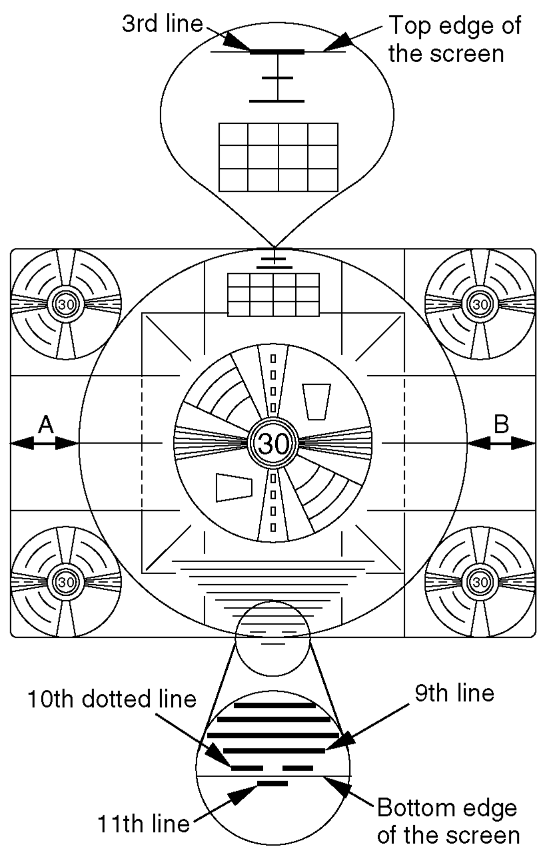


Fig. E12-1

(Model: H, I, J, K, L)

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Select H CENTER in EVR adjustment mode and adjust so that A is approximately equal to width B.
3. Select V SIZE in EVR adjustment mode and adjust so that the top 4th line is just in view.
4. Confirm that the bottom 3rd line is in view and that the bottom 4th line is out of view.

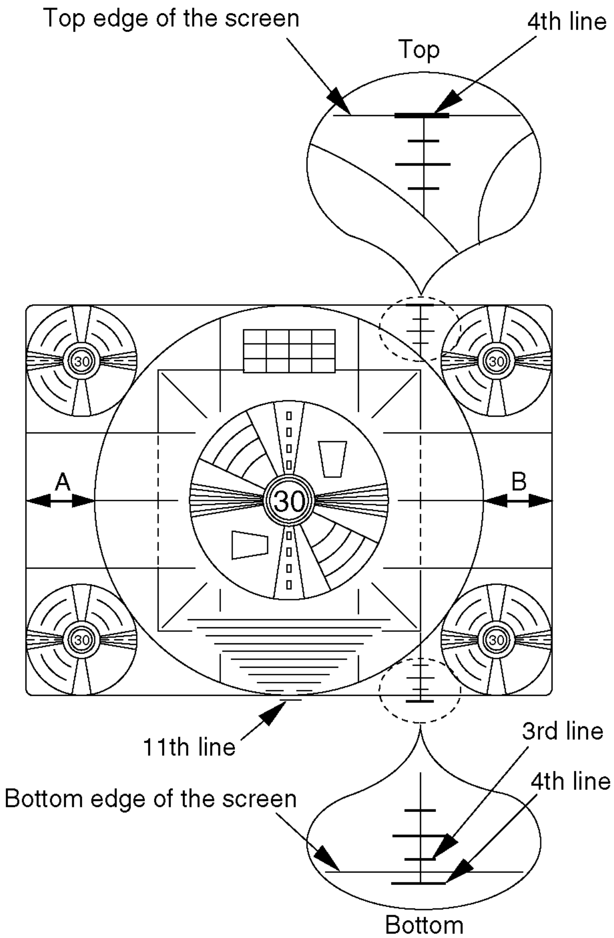


Fig. E12-2

7.3.16. WHITE BALANCE ADJUSTMENT

Purpose:	To set the standard white level for each color temperature.
Symptom of Misadjustment :	White becomes bluish or reddish.
Test Point:	**TP50 (CRT C.B.A)**
Adjustment:	**FOCUS CONTROL (Flyback Transformer),**
	SCREEN CONTROL (Flyback Transformer),
	SUB BRIGHT (EVR),
	G DRIVE (EVR),
	B DRIVE (EVR),
	R CUT -OFF (EVR),
	G CUT -OFF (EVR),
	B CUT -OFF (EVR),
Specification:	**Refer to descriptions below.**
Input:	Video Input Jack, Monoscope Pattern Signal,
	White Pattern Signal
Mode:	STOP
Equipment:	NTSC Video Pattern Generator,
	White Pattern Generator, Oscilloscope

1. Supply a Monoscope Pattern Signal to the Video Input Jack.
2. Connect the Oscilloscope to TP50 on the CRT C.B.A.
   (Use TP47 for GND.)
3. Select SUB BRIGHT and move the shaded area to the value in EVR adjustment mode.
4. Adjust the FOCUS CONTROL on the Flyback Transformer so that the center of picture is the sharpest.
5. Press DISPLAY key (Service Switch) on the remote control for collapse scan. (Refer to How to Enter Service Mode.)
6. Turn the SCREEN CONTROL on Flyback Transformer fully counterclockwise.
7. Adjust SUB BRIGHT in EVR adjustment mode so that the level A is (140 VDC±5 VDC: **Model: A, B, C, D, E, F, G**) or (170 VDC±5 VDC **Model: H, I, J, K, L**).

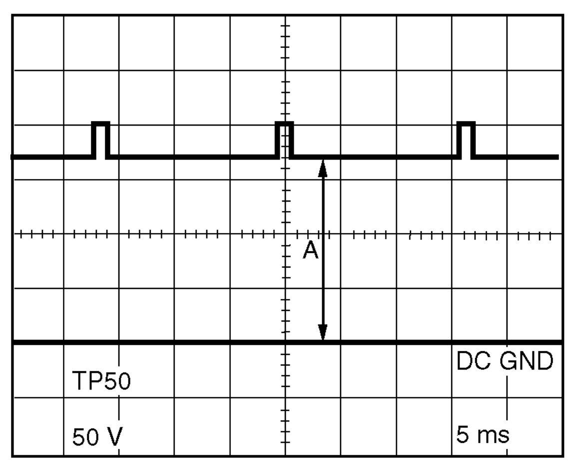


Fig. E13

8. Turn the SCREEN CONTROL on the Flyback Transformer clockwise carefully and stop at the point where any color is first observed.
9. In EVR adjustment mode, select the two colors not observed in step 8 from the following control functions (B CUT -OFF, G CUT -OFF, or R CUT -OFF) and adjust so that the horizontal line becomes white.

   For example, if the horizontal line appeared red in step 8, select and adjust the B CUT -OFF and G CUT -OFF.
10. Supply a White Pattern Signal to the Video Input Jack.
11. Press DISPLAY key on the remote control again to return for full frame scan.
12. Select G DRIVE and B DRIVE in EVR adjustment mode and adjust so that the entire screen is white.
13. Select SUB BRIGHT in EVR adjustment mode. Then, after making a note of the original value, adjust to the minimum (C0) and while turning SUB BRIGHT value from minimum (C0) up to maximum (3F), confirm that the screen is tracking the White Pattern properly. Repeat the above steps 5, 9, 11, and 12 until the screen is properly tracking the White Pattern.

Note:

Before pressing DISPLAY key on the remote control for collapse scan, select the desired control function and move the shaded area to the value.

7.3.17. SUB BRIGHTNESS ADJUSTMENT

Purpose :	To set the optimum brightness level.
Symptom of Misadjustment :	The picture is too white or too black.

Note:

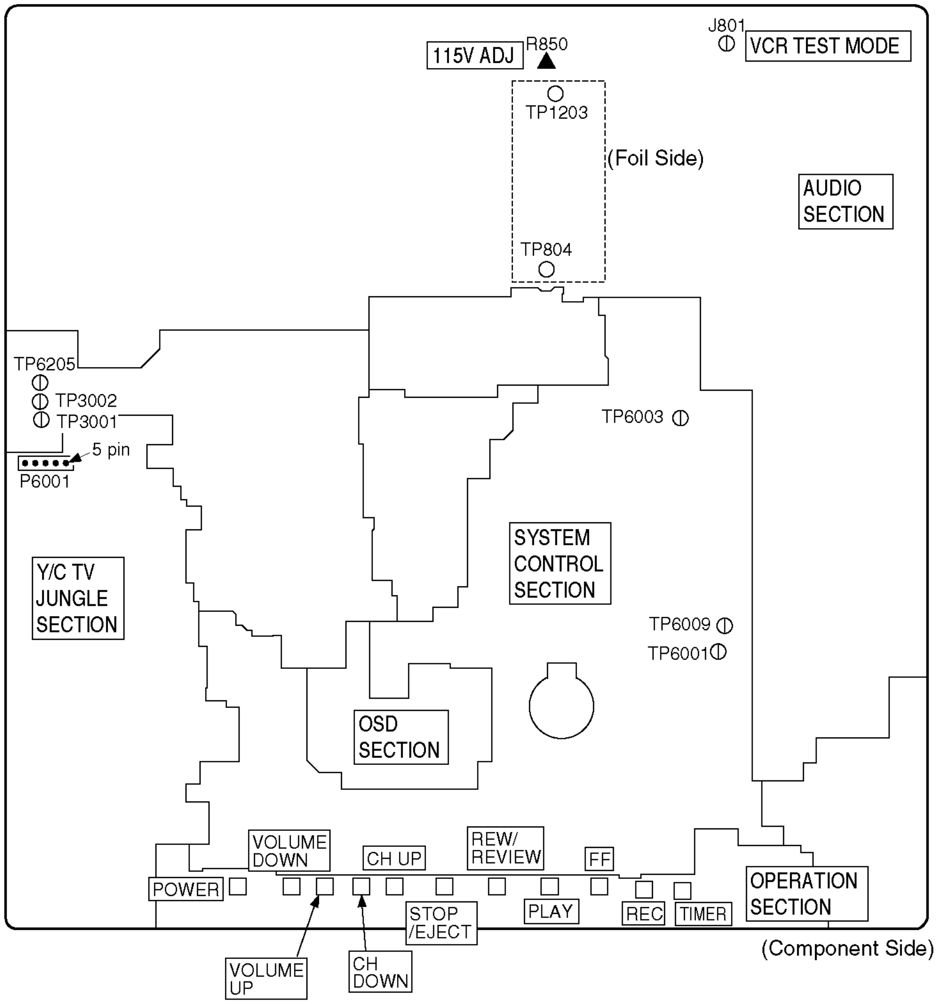
Perform this adjustment in a darkened room.

Test Point:	**----------**
Adjustment:	**SUB BRIGHT (EVR)**
Specification:	**Refer to descriptions below.**
Input:	----------
Mode:	STOP

1. Do not input any signal to the unit.
2. Set INPUT SELECT item to LINE in SET UP TV menu to display black screen.
3. Select SUB BRIGHT in EVR adjustment mode, and adjust so that the black screen starts to turn grey (lighting only).

7.4. TEST POINTS AND CONTROL LOCATION

Main C.B.A. (Model: A, B, C, D, E, F, G)

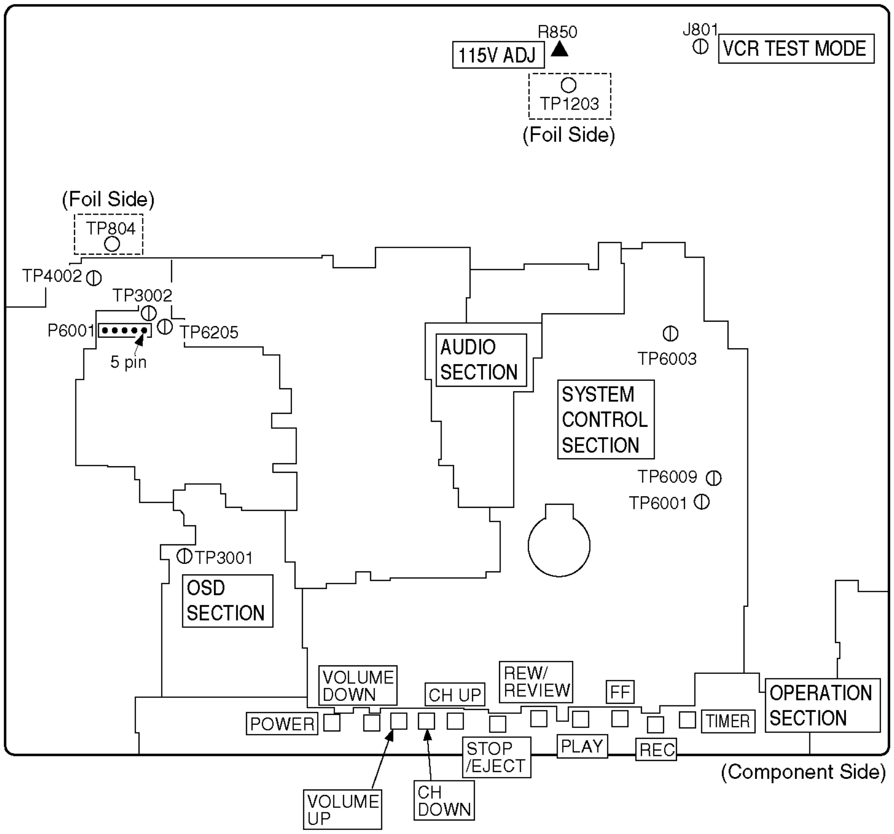


FUNCTION OF IMPORTANT TEST POINTS	
TP1203	+115V
TP3001	Video Signal
TP3002	REC/PB Video envelope signal
TP4002	Normal Audio signal
TP6001	Service Test Point (inhibit sensors)
TP6003	Defeat Auto tracking function (connect to +5V(TP6009))
TP6009	+5V
TP6205	Head SW.

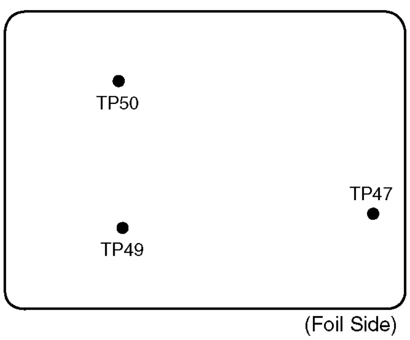
Test Point Information

- ● Test Point with a Test Pin.
- ⦶ Test Point with a jumper wire across a hole in the P.C.B.
- ○ Test Point with no Test Pin.

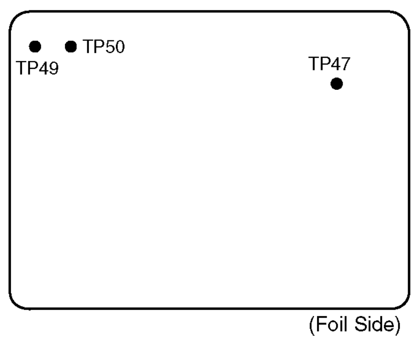
Main C.B.A. (Model: H, I, J, K, L)



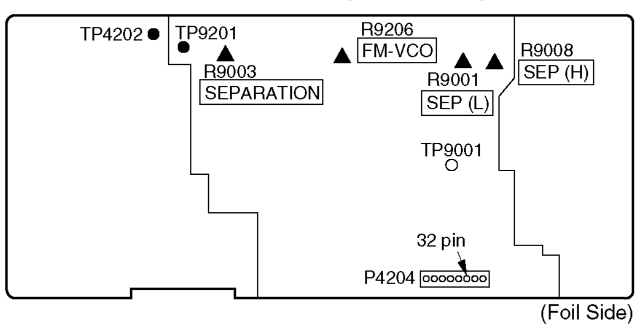
CRT C.B.A. (Model: A, B, C, D, E, F, G)



CRT C.B.A. (Model: H, I, J, K, L)



Audio C.B.A. (Model: L)



8 SCHEMATIC DIAGRAMS

8.1. SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES

1. **Important safety notice**
   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components. Use only the specified parts.

2. Do not use the part number shown on this drawing for ordering.
   The correct part number is shown in the parts list, and may be slightly different or amended since this drawing was prepared.

3. Use only original replacement parts:
   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Parts different in shape or size may be used.
   However, only interchangeable parts will be supplied as service replacement parts.

5. Test point information
   ⓘ :Test point with a jumper wire across a hole in P.C.B.
   ▭→ :Test point with a component lead on the foil side.
   ⊘ :Test point with no test pin.
   ● :Test point with a test pin.

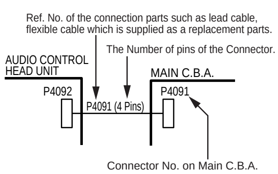
Schematic Diagram Notes

1. Indication for Zener Voltage of Zener Diodes
   The Zener Voltage of Zener Diodes are indicated as such on Schematic Diagrams.

   Example:
   (6.2V)......Zener Voltage

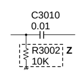
2. How to identify Connectors
   Each connector is labeled with a Connector No. and Pin No. Indicating what it is connected to, in other words, its counter part.
   Use the interconnection schematic diagram to find the connection between associated connectors.

   Example:
   The connections between C.B.A.s are shown below.



3. Parts enclosed in dashed lines marked "Z" are not used in any models included in this service manual.

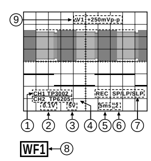
   Example:



4. The part number shown on this drawing is only main part number, except for safety parts. Be sure to make your orders of replacement parts according to the parts list.

Signal Waveform Note

How to read Signal Waveform



1. Connecting Point
2. Volts/Div
3. Volts/Div
4. Connecting Point
5. Time/Div
6. Trigger Channel of the scope (1:CH1,2:CH2)
7. Operation Mode of VCR
8. Waveform Point on Schematic
9. ΔV1:Peak to Peak

Voltage Chart Note

Voltage Measurement
a. Color bar signal in SP mode.
b. ---:Unmeasurable or not necessary to measure.

Circuit Board Layout Note

Circuit Board Layout shows components installed for various models.
For proper parts content for the model you are servicing, please refer to the schematic diagram and parts list.

NOTE:
Circuit Board Layout includes components which are not used.

Comparison chart of models & marks

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

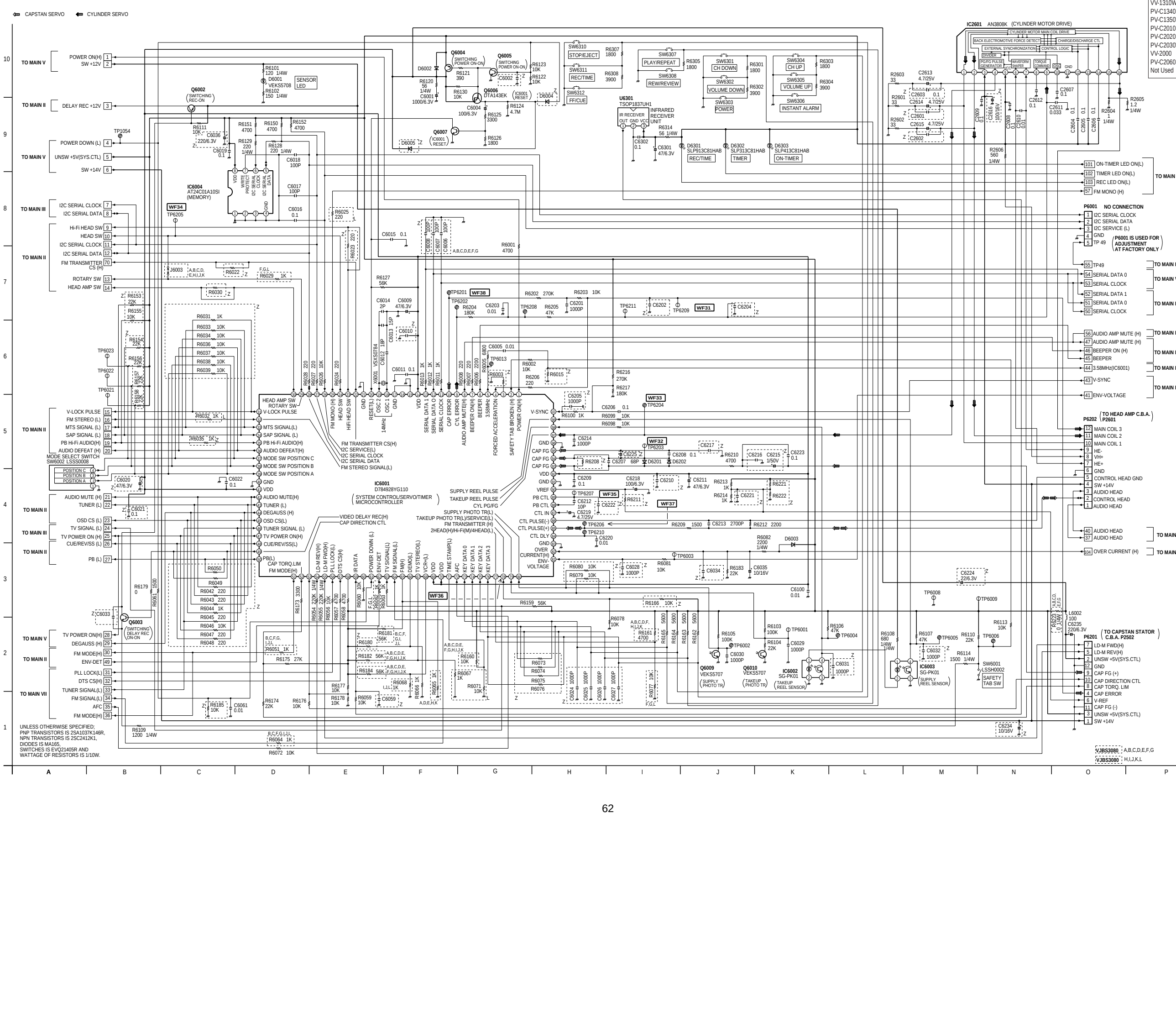
Note : Refer to item 3 of Schematic Diagram Notes for mark "Z".

8.2. MAIN I (SYSTEM CONTROL/SERVO/OPERATION/CYLINDER DRIVE) SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



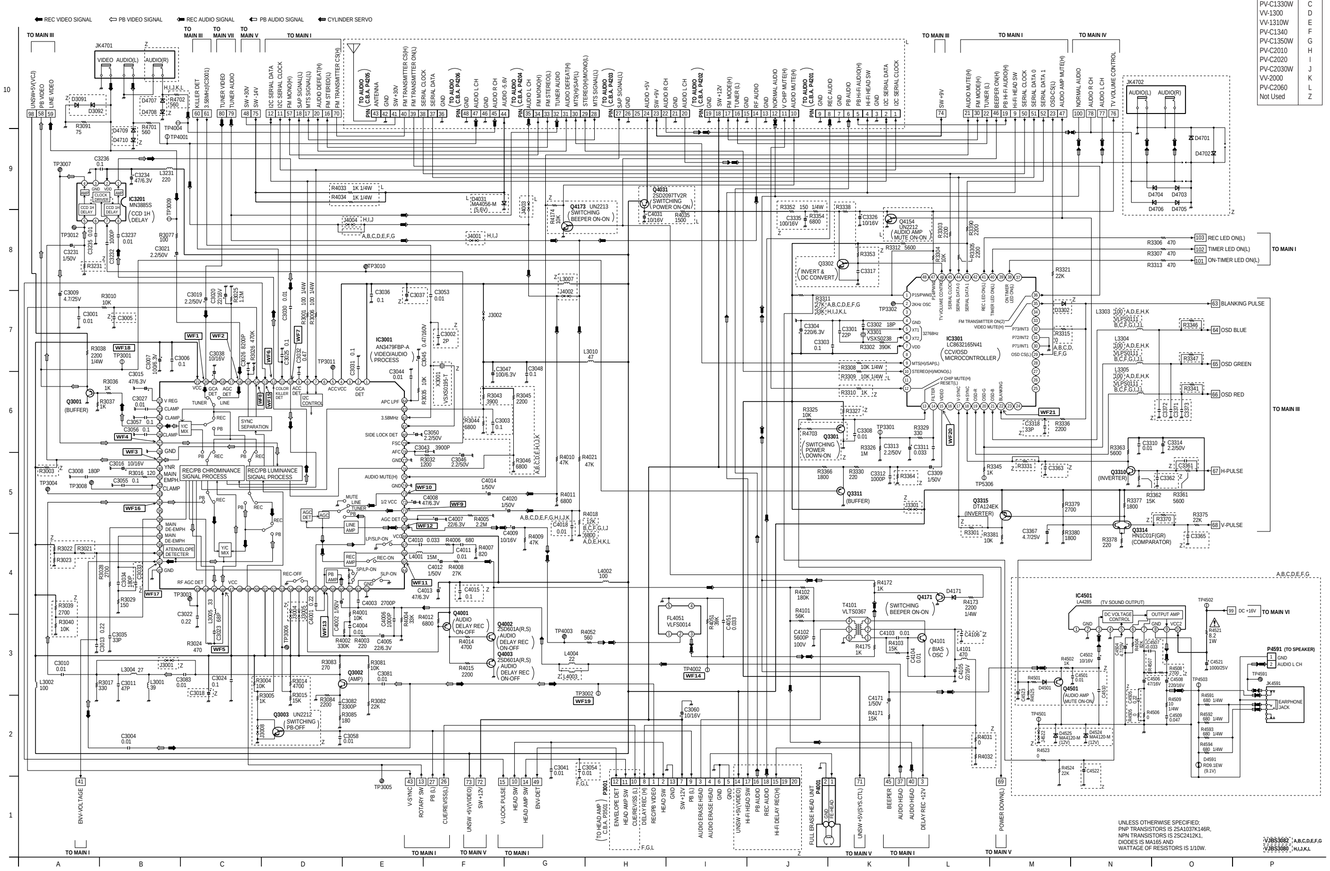
8.3. MAIN II (SIGNAL PROCESS/OSD/AUDIO) SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

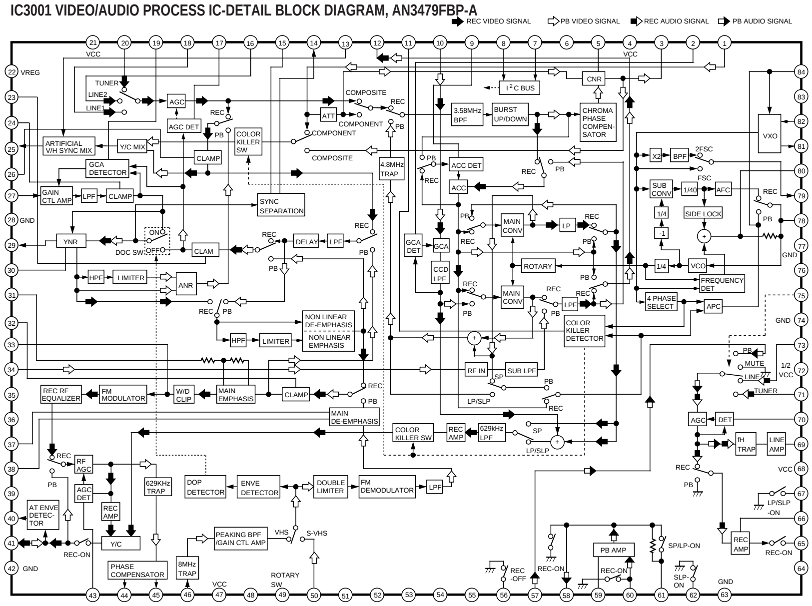
COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

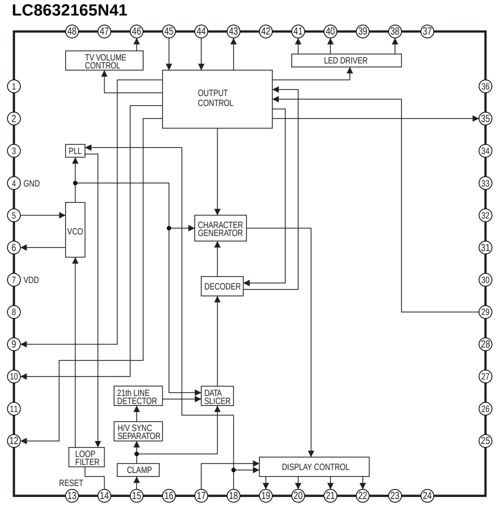


UNLESS OTHERWISE SPECIFIED;
PNP TRANSISTORS IS 2SA1037K146R,
NPN TRANSISTORS IS 2SC2412K1,
DIODES IS MA165 AND
WATTAGE OF RESISTORS IS 1/10W.

IC3001 VIDEO/AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, AN3479FBP-A



IC3301 8BIT MICROCONTROLLER IC-DETAIL BLOCK DIAGRAM, LC8632165N41



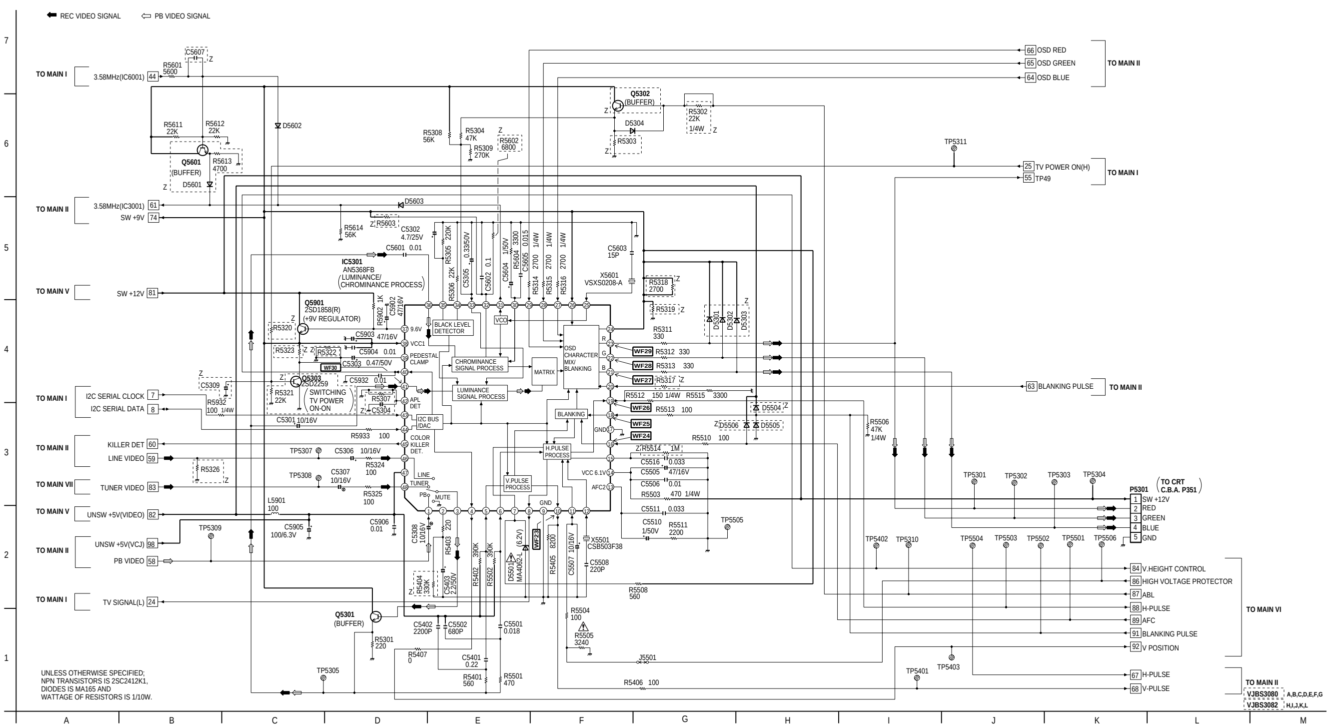
8.4. MAIN III (TV Y/C PROCESS) SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

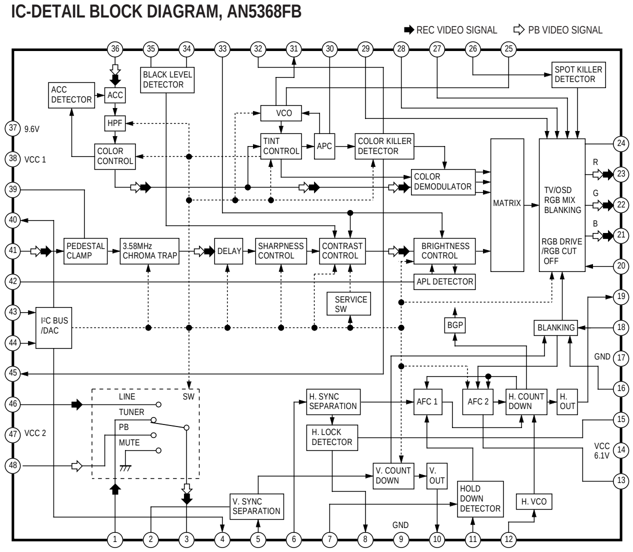
IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



IC5301 LUMINANCE/CHROMINANCE PROCESS
IC-DETAIL BLOCK DIAGRAM, AN5368FB



THE FOLLOWING CONTROL FUNCTIONS ARE ADJUSTED BY USING I2C BUS.

- SUB COLOR
- SUB TINT
- SUB BRIGHT
- R CUT-OFF
- G CUT-OFF
- B CUT-OFF
- G DRIVE
- B DRIVE
- SUB CONTRAST
- H CENTER
- V SIZE
- V POSITION

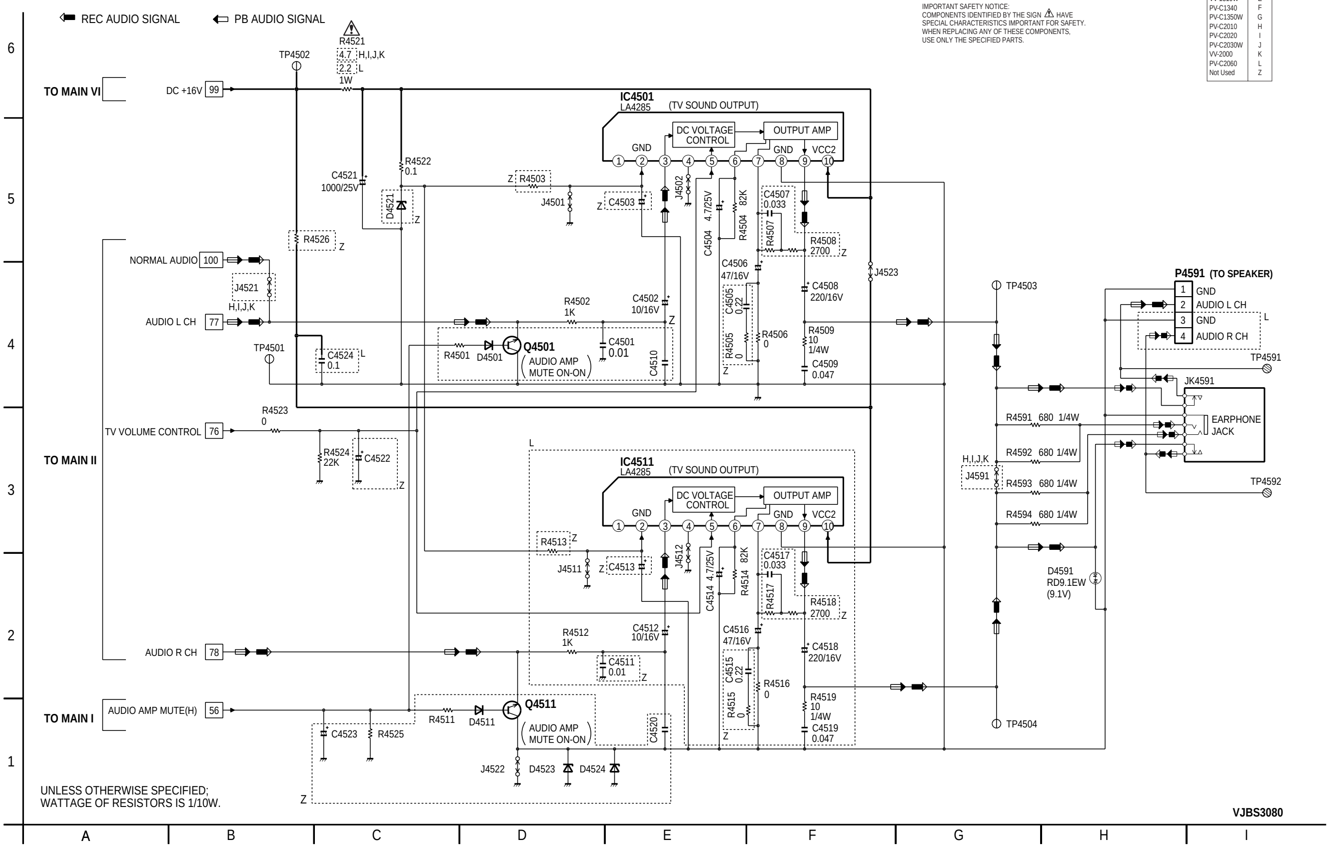
8.5. MAIN IV (AUDIO AMP) SCHEMATIC DIAGRAM (H, I, J, K, L)

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



8.6. MAIN V (POWER SUPPLY) SCHEMATIC DIAGRAM

COMPARISON CHART OF MODELS & MARKS

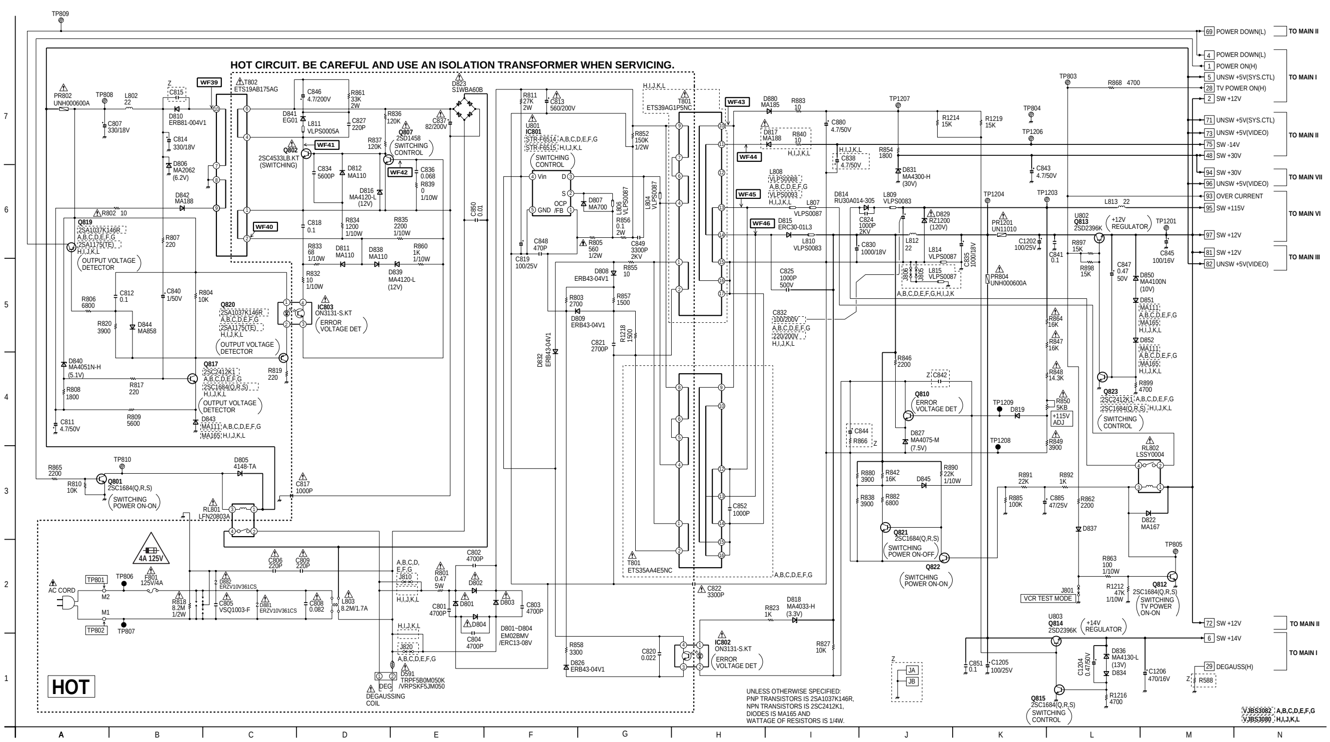
MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 4A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D' INCENDIE N' UTILISERQUE DES FUSIBLE DE MÊME TYPE 4A 125V.

4A 125V

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



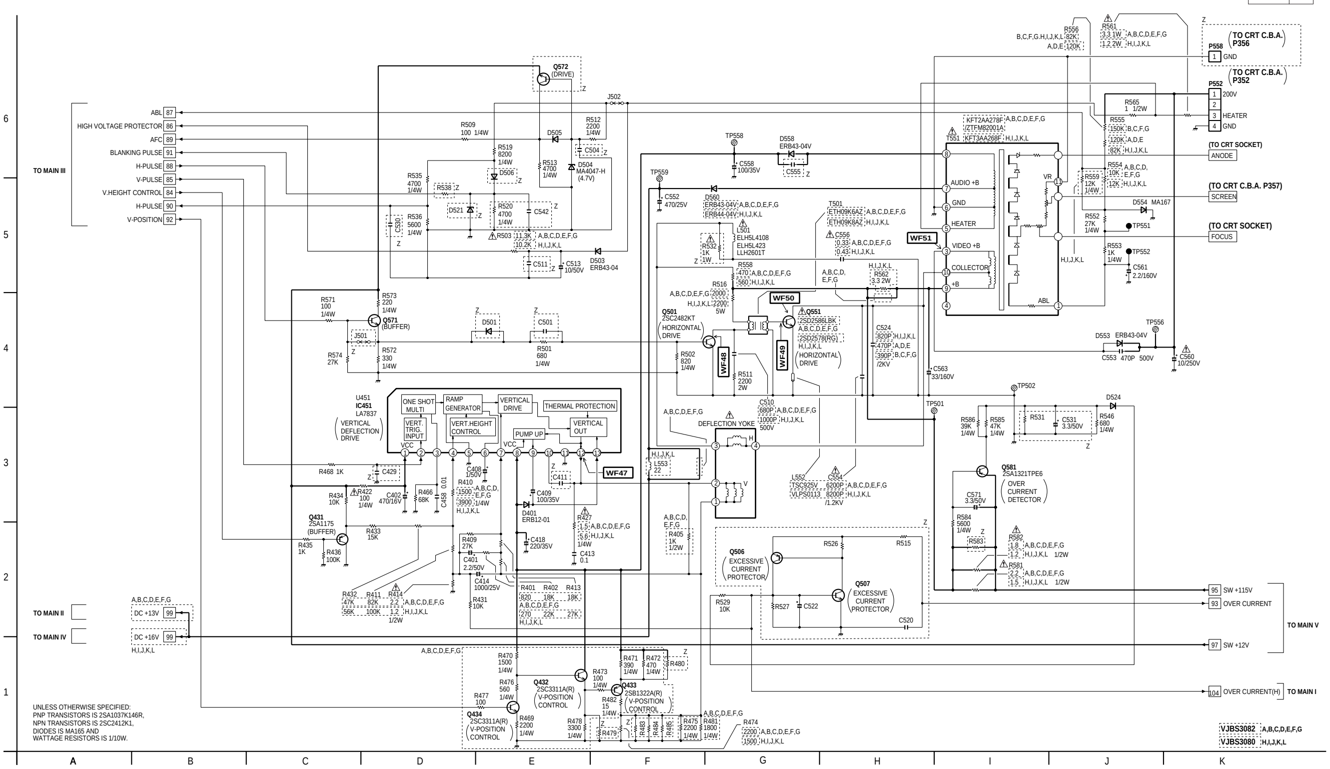
8.7. MAIN VI SCHEMATIC DIAGRAM

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

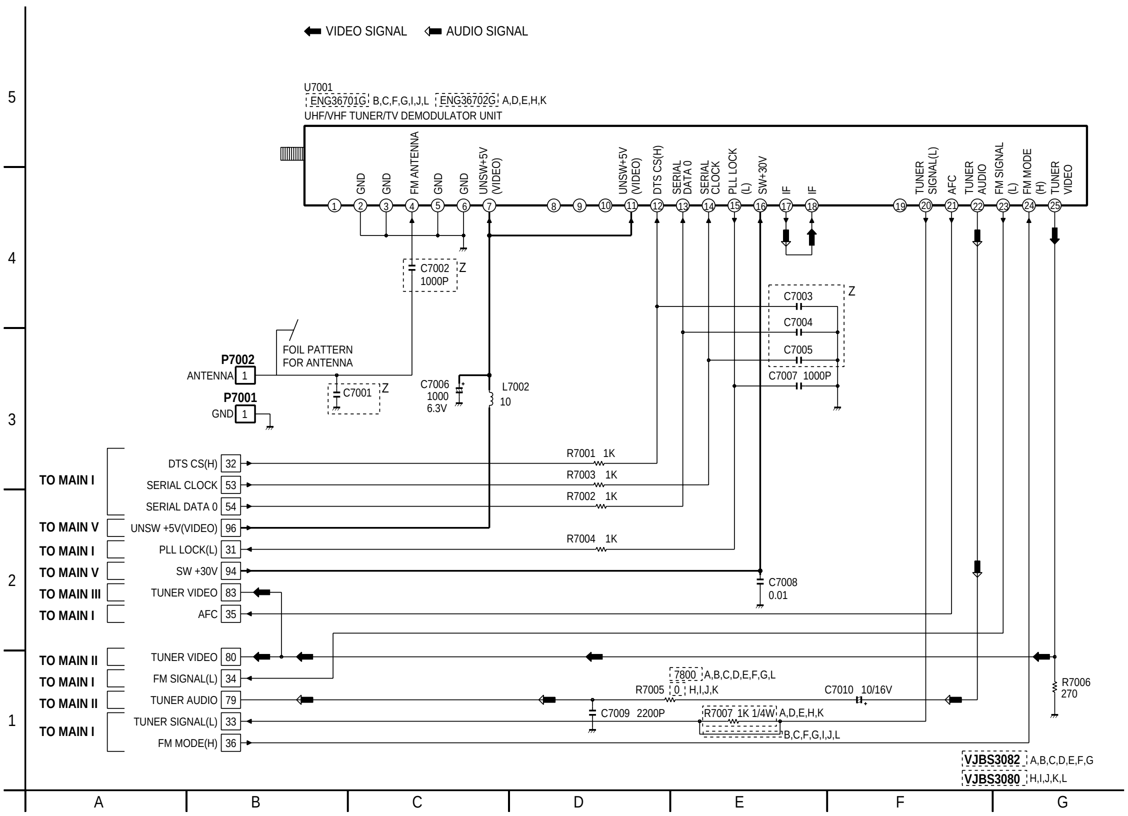


8.8. MAIN VII (DEMODULATOR) SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

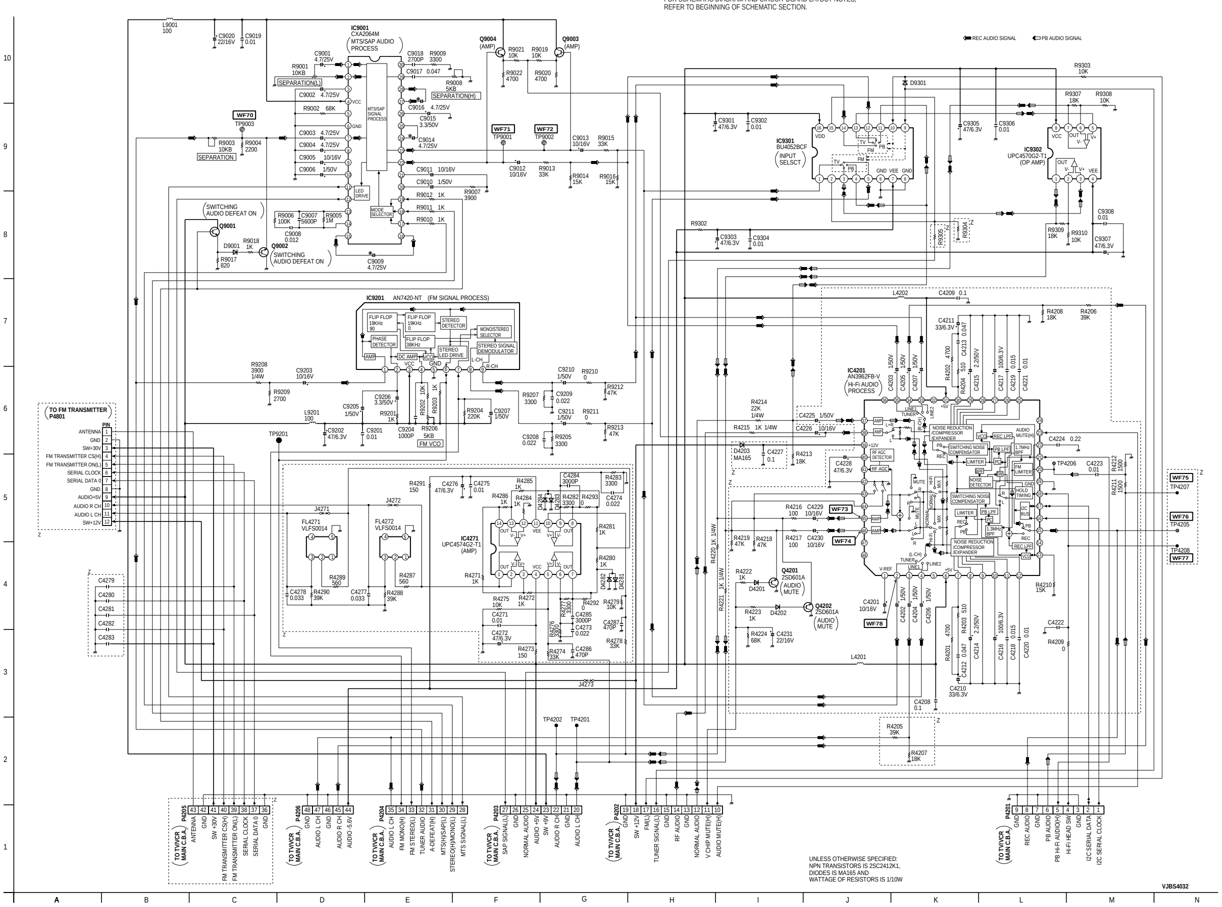


8.9. AUDIO SCHEMATIC DIAGRAM (L)

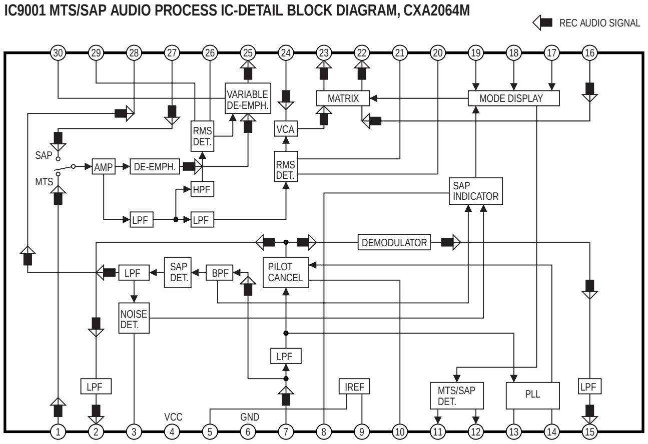
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

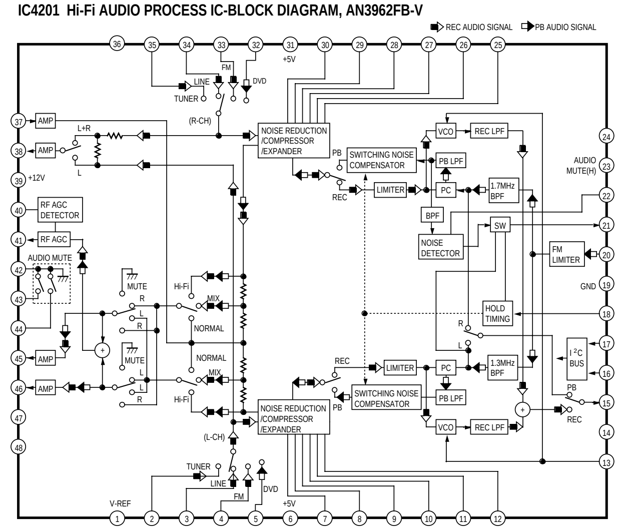
MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



IC9001 MTS/SAP AUDIO PROCESS IC-DETAIL BLOCK DIAGRAM, CXA2064M



IC4201 Hi-Fi AUDIO PROCESS IC-BLOCK DIAGRAM, AN3962FB-V

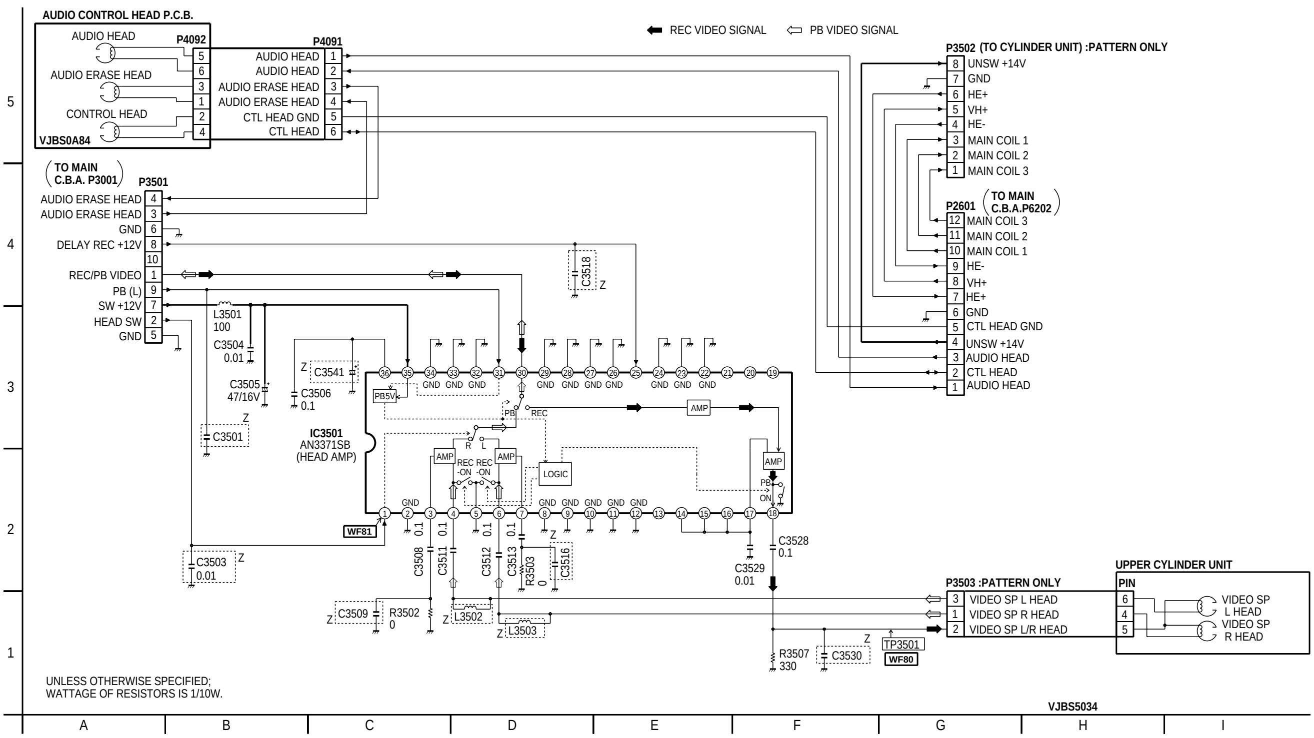


8.10. HEAD AMP (A, B, C, D, E, H, I, J, K) / AUDIO CONTROL HEAD SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z

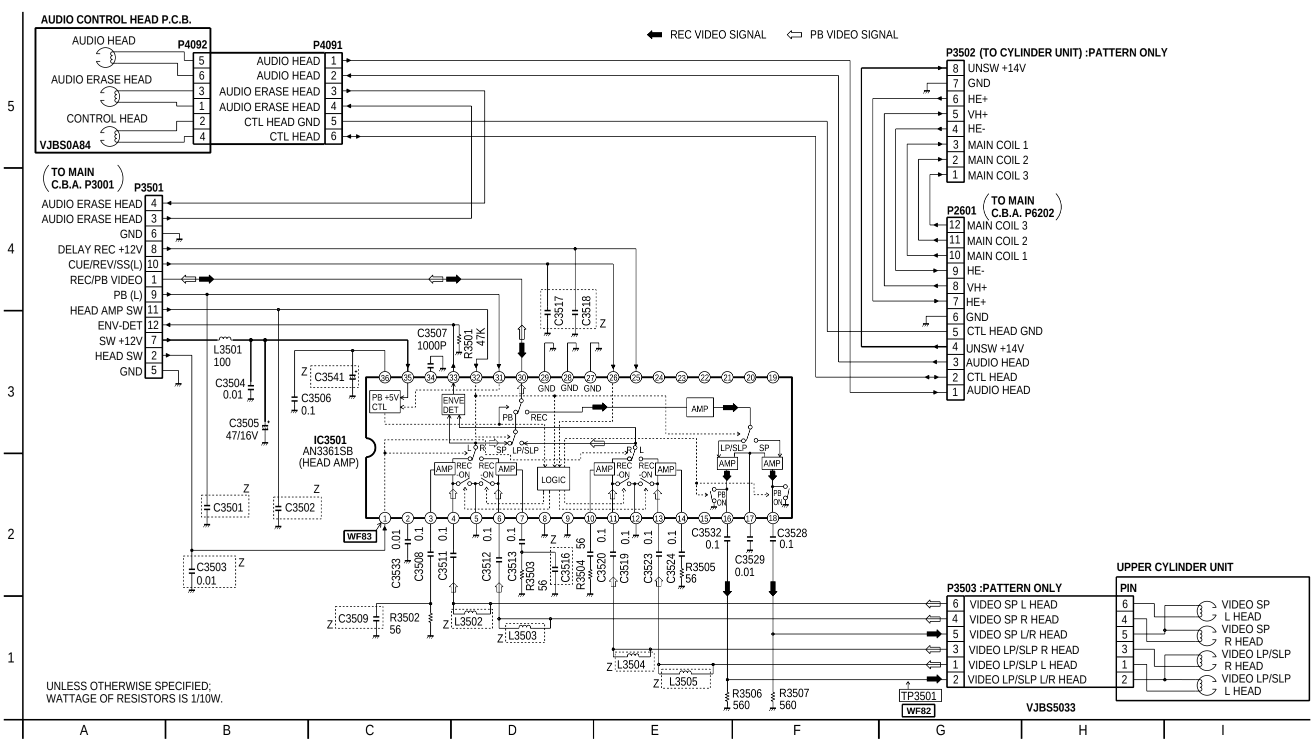


8.11. HEAD AMP (F, G, L) / AUDIO CONTROL HEAD SCHEMATIC DIAGRAM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



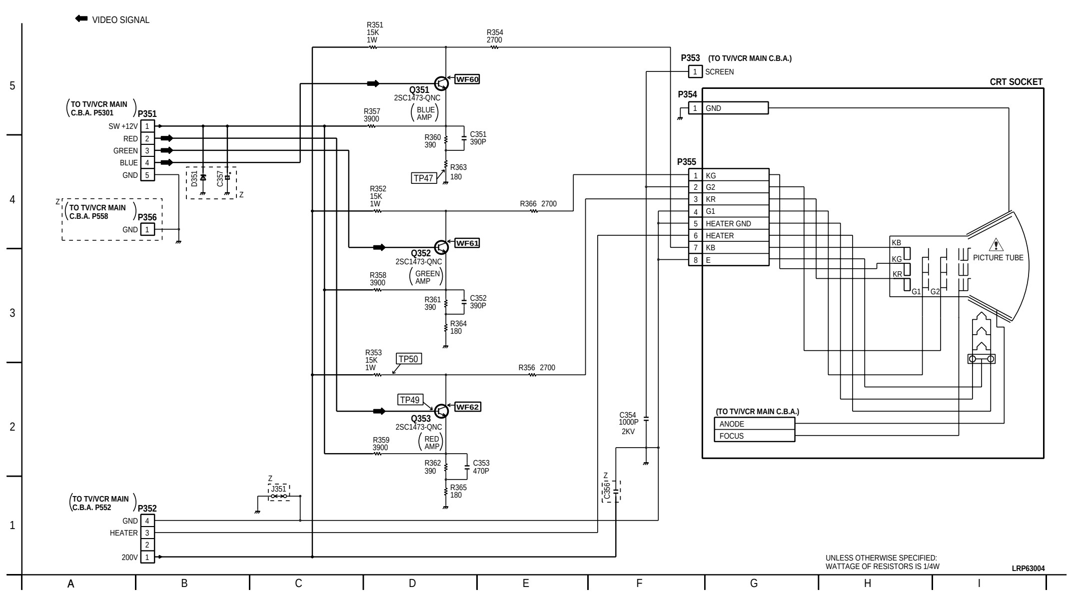
8.12. CRT SCHEMATIC DIAGRAM (A, B, C, D, E, F, G)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE
SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY.
WHEN REPLACING ANY OF THESE COMPONENTS,
USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



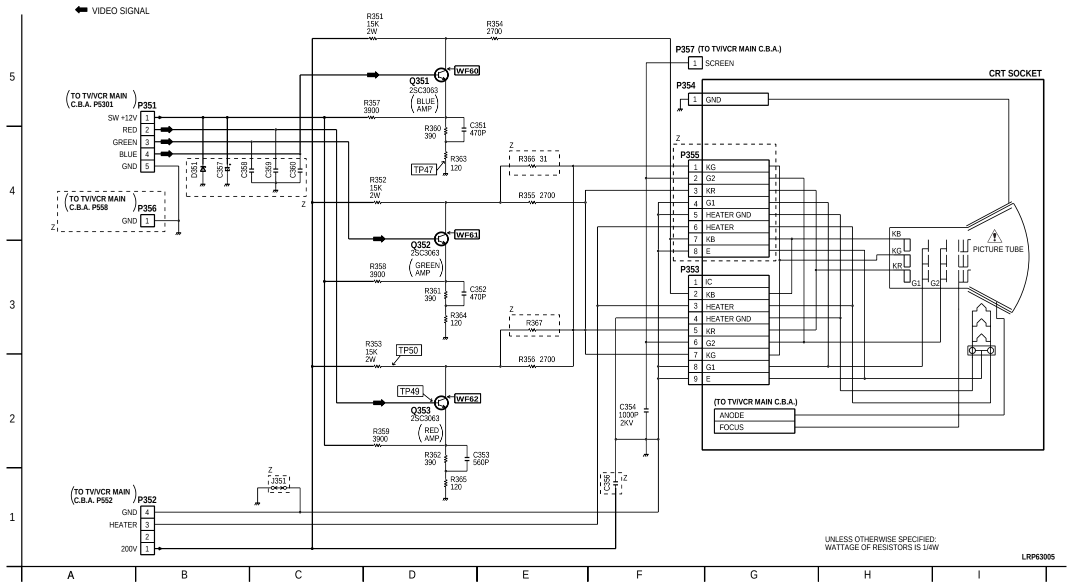
8.13. CRT SCHEMATIC DIAGRAM (H, I, J, K, L)

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



8.14. CAPSTAN STATOR SCHEMATIC DIAGRAM

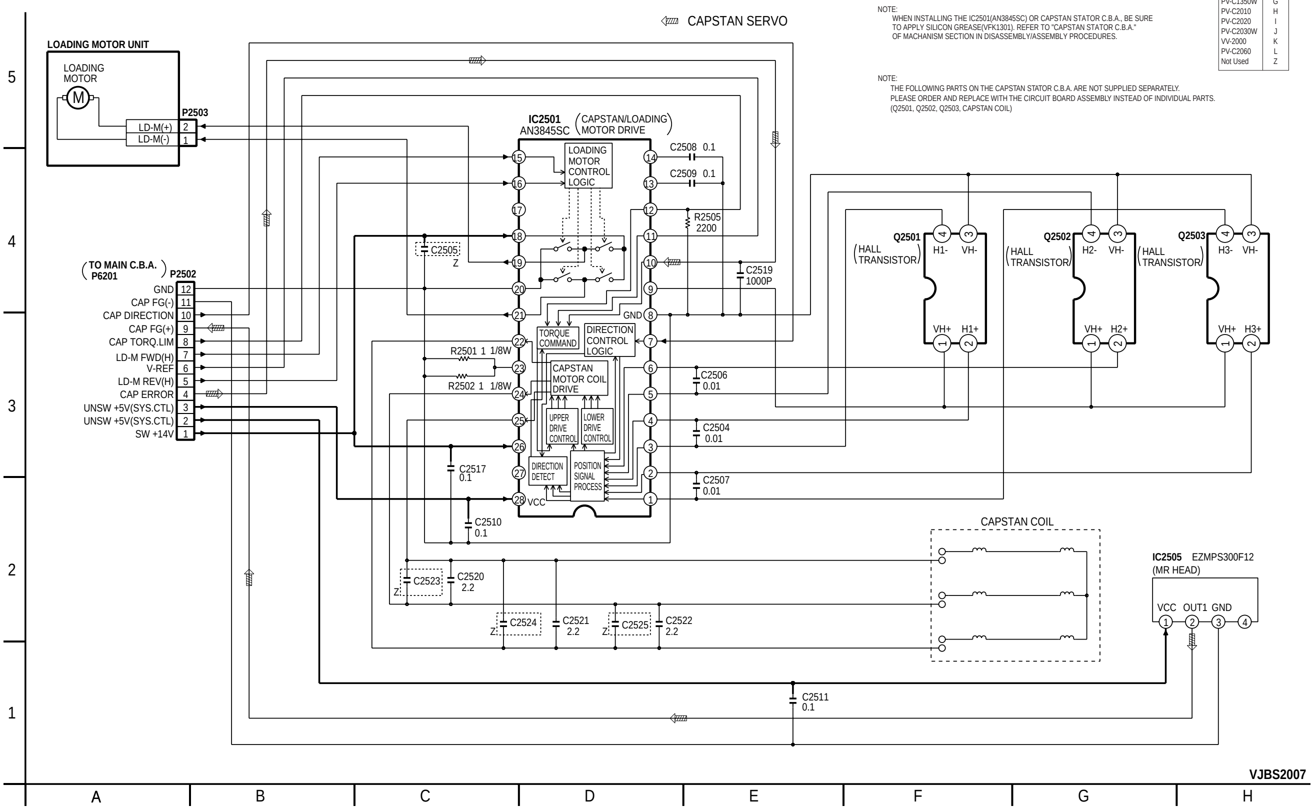
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A." OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY. PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS. (Q2501, Q2502, Q2503, CAPSTAN COIL)

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



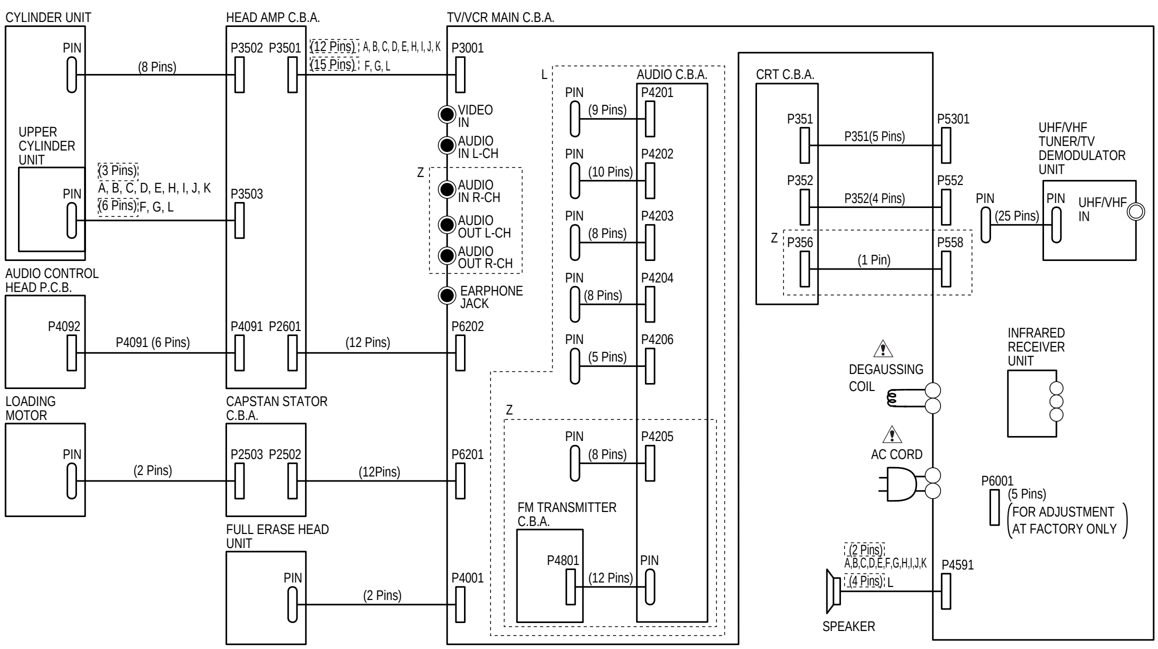
8.15. INTERCONNECTION SCHEMATIC DIAGRAM

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

COMPARISON CHART OF MODELS & MARKS

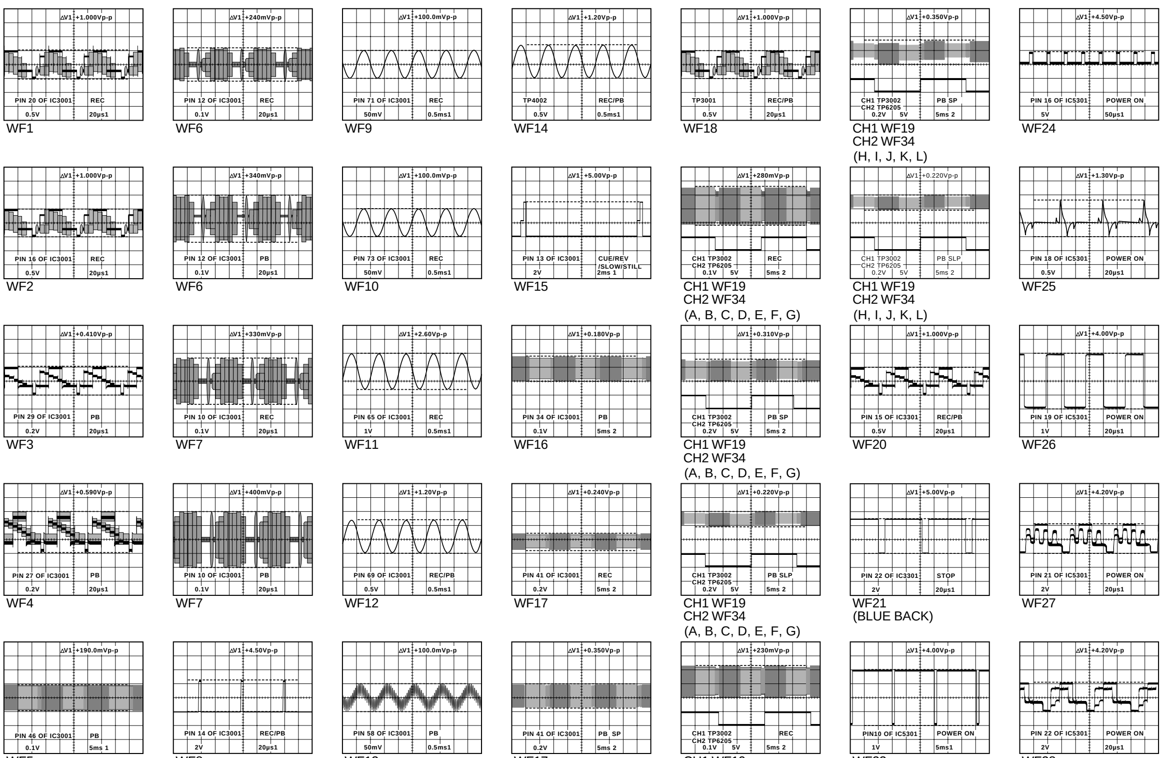
MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L
Not Used	Z



8.16. SIGNAL WAVEFORM

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

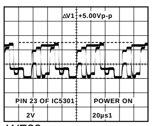
TV/VCR MAIN C.B.A.



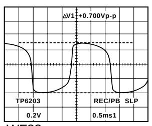
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PV-M1349	A
PV-M1359W	B
VV-1309	C
PV-M1369	E
VV-1319W	D
PV-M1379W	F
PV-M2059	G
PV-M2069W	H
PV-M2079	I

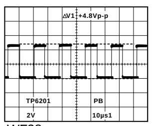
NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.



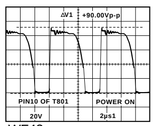
WF29



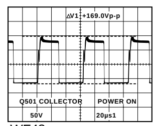
WF32



WF38

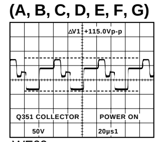


WF43



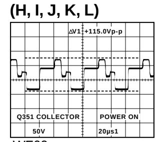
WF48

CRT C.B.A. (A, B, C, D, E, F, G)

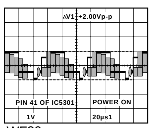


WF60

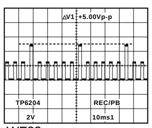
CRT C.B.A. (H, I, J, K, L)



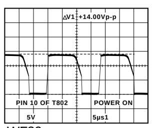
WF60



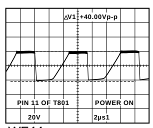
WF30



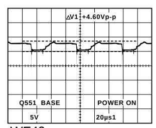
WF33



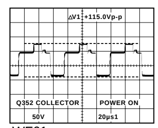
WF39



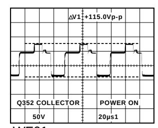
WF44



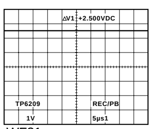
WF49



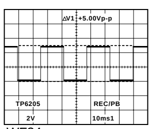
WF61



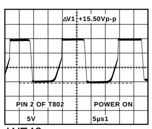
WF61



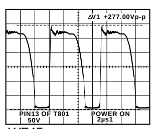
WF31



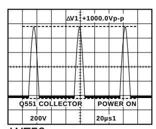
WF34



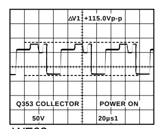
WF40



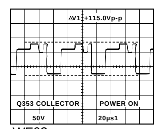
WF45



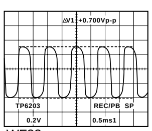
WF50



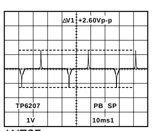
WF62



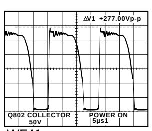
WF62



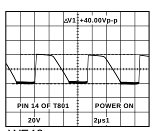
WF32



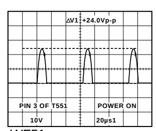
WF35



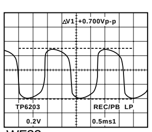
WF41



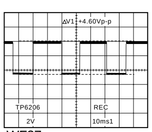
WF46



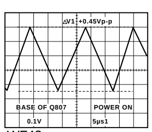
WF51



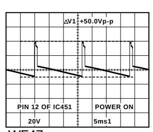
WF32



WF37



WF42



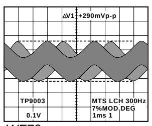
WF47

COMPARISON CHART OF MODELS & MARKS

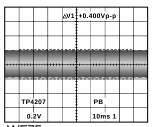
MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

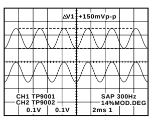
AUDIO C.B.A. (L)



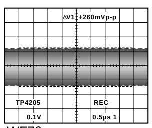
WF70



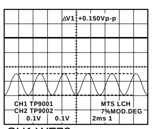
WF75



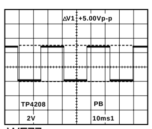
CH1 WF72
CH2 WF72



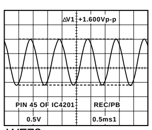
WF76



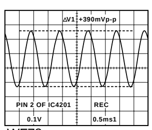
CH1 WF72
CH2 WF72



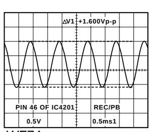
WF77



WF73

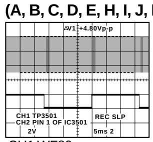


WF78



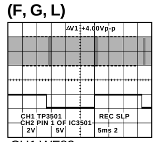
WF74

HEAD AMP C.B.A. (A, B, C, D, E, H, I, J, K)



CH1 WF80
CH2 WF81

HEAD AMP C.B.A. (F, G, L)



CH1 WF82
CH2 WF83

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

8.17. VOLTAGE CHART

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MAIN C.B.A. (POWER SUPPLY/VIDEO/AUDIO SECTION)

MODE / PIN NO.	REC	PLAY
IC451		
1	11.3	11.3
2	3.9	3.9
3	5.7	5.7
4	5.8	5.8
5	0	0
6	0	0
7	5.6	5.6
8	26.8	26.8
9	2.1	2.1
10	1.5	1.5
11	0.1	0.1
12	15.7	15.8
13	27.4	27.4
IC801		
1	1.6	1.6
2	0	0
3	133.0	133.0
4	17.3	17.3
5	0	0
IC802		
1	13.9	14.1
2	12.9	13.1
3	4.2	4.2
4	17.3	17.3
IC803		
1	5.3	5.3
2	4.5	4.5
3	0.1	-0.4
4	5.8	5.6
IC3001		
1	5.1	5.1
2	3.4	3.4
3	2.1	2.1
4	5.1	5.1
5	2.7	2.7
6	1.9	1.9
7	5.1	5.1
8	5.1	5.1
9	2.2	2.2
10	2.8	2.8
11	0.4	0.9
12	2.8	2.8
13	0	0
14	0.5	0.5
15	1.0	1.1
16	3.1	3.6
17	2.3	1.7
18	2.6	2.6
19	2.6	2.6
20	3.1	3.5
21	5.0	4.9
22	2.0	2.0
23	2.4	2.4
24	2.5	2.4

MODE / PIN NO.	REC	PLAY
25	2.0	2.0
26	2.5	2.4
27	2.0	2.0
28	0	0
29	1.9	1.8
30	1.8	1.5
31	2.0	1.9
32	2.3	2.4
33	2.0	2.3
34	2.8	2.7
35	2.0	1.9
36	2.5	2.5
37	0.1	1.5
38	4.5	2.3
39	2.2	1.9
40	3.4	3.0
41	2.8	3.4
42	0	0
43	3.3	3.3
44	2.6	2.6
45	2.6	2.6
46	2.6	2.6
47	5.0	4.9
48	1.2	1.2
49	2.6	2.6
50	3.8	3.1
51	5.0	4.9
52	2.5	2.5
53	2.5	2.5
54	1.9	2.1
55	2.1	2.1
56	5.2	4.4
57	2.6	2.6
58	2.6	2.6
59	2.6	2.6
60	2.6	2.6
61	2.6	2.6
62	0	0
63	0	0
64	1.6	1.8
65	2.6	2.6
66	2.6	2.6
67	2.6	2.7
68	5.2	5.2
69	2.6	2.6
70	0	0
71	2.6	2.6
72	2.6	2.6
73	2.7	2.6
74	0	0
75	0	0
76	3.4	3.3
77	0	0
78	2.2	2.2
79	3.0	3.0

MODE / PIN NO.	REC	PLAY
80	2.2	2.2
81	2.6	2.7
82	2.8	2.8
83	2.5	2.5
84	3.8	2.4
IC3201		
1	2.5	2.5
2	5.1	5.1
3	0	0
4	2.5	2.5
5	3.0	3.0
6	-2.9	-2.9
7	2.3	2.3
8	2.9	3.0
IC3301		
1	2.4	2.4
2	2.6	2.7
3	5.2	5.2
4	0	0
5	2.2	1.7
6	2.3	2.3
7	5.2	5.2
8	0	0
9	0.1	0.1
10	0.1	0.1
11	0.1	0.1
12	0	0.1
13	5.2	5.2
14	3.6	3.6
15	2.8	2.8
16	0	0
17	5.0	5.0
18	4.2	4.3
19	0.1	0.1
20	0	0.1
21	0	0.1
22	0	0.1
23	0	0
24	0	0
25	0	0.1
26	0	0.1
27	0	0.1
28	0	0.1
29	4.0	4.1
30	0	0
31	0	0
32	0	0.1
33	0	0
34	0	0
35	0	0
36	5.2	5.2
37	0	0
38	5.2	5.2
39	5.2	5.2
40	---	---

MODE / PIN NO.	REC	PLAY
41	0.4	5.2
42	0	0
43	4.8	4.8
44	4.3	4.4
45	4.9	4.9
46	3.2	3.2
47	2.0	2.0
48	0	0
IC4201		
1	2.6	2.6
2	2.5	2.6
3	2.5	2.6
4	2.5	2.6
5	2.5	2.6
6	5.1	5.1
7	2.6	2.6
8	1.7	1.6
9	0	0
10	2.6	2.6
11	2.6	2.6
12	2.6	2.6
13	2.3	2.3
14	0.1	0
15	2.6	0.1
16	5.1	5.1
17	5.1	5.1
18	2.6	2.6
19	0	0
20	2.6	2.6
21	2.1	4.4
22	2.6	2.1
23	0.5	0.5
24	0	0
25	2.6	2.6
26	2.6	2.6
27	2.6	2.5
28	0	0
29	1.7	1.7
30	2.6	2.6
31	5.1	5.1
32	2.5	2.5
33	2.6	2.6
34	2.6	2.6
35	2.6	2.6
36	0.1	0
37	2.6	2.6
38	2.6	2.6
39	11.0	11.1
40	0.1	0.7
41	6.2	6.2
42	0	0
43	0	0
44	0	0
45	6.2	6.2
46	6.3	6.3

MODE / PIN NO.	REC	PLAY
47	0	0
48	0	0
IC4271		
1	0	0
2	0	0
3	0	0
4	4.0	4.0
5	0	0
6	0	0
7	0	0
8	0	0
9	0	0
10	0	0
11	-4.6	-4.6
12	0	0
13	0	0
14	0	0
IC4501		
1	6.4	6.4
2	0	0
3	6.4	6.4
4	0	0
5	2.4	2.4
6	6.7	6.7
7	6.7	6.7
8	0	0
9	6.8	6.8
10	15.8	15.8
IC4511		
1	6.4	6.4
2	0	0
3	6.4	6.4
4	0	0
5	2.4	2.4
6	6.7	6.7
7	6.7	6.7
8	0	0
9	6.8	6.8
10	15.8	15.8
IC5301		
1	2.7	2.7
2	2.9	2.7
3	3.8	4.0
4	5.2	5.2
5	2.1	2.2
6	2.1	2.2
7	6.2	6.2
8	0.3	0.3
9	0	0
10	3.8	3.9
11	5.3	5.3
12	2.4	2.4
13	4.2	4.2
14	6.2	6.2
15	4.3	4.3

MODE / PIN NO.	REC	PLAY
16	0.8	0.7
17	0	0
18	0.1	0.1
19	1.8	1.8
20	0	0
21	3.7	3.7
22	3.5	3.6
23	3.7	3.7
24	9.1	9.1
25	3.6	3.6
26	9.2	9.2
27	0	0
28	0	0
29	0	0
30	5.8	5.8
31	6.2	2.0
32	3.7	3.7
33	7.6	7.6
34	8.2	8.2
35	5.2	5.2
36	4.3	4.3
37	9.7	9.7
38	9.1	9.1
39	2.3	2.1
40	1.6	1.7
41	2.4	2.6
42	0	0
43	5.1	5.1
44	5.1	5.1
45	0.4	0.9
46	2.7	2.3
47	5.1	5.1
48	2.5	2.5
IC9001		
1	4.2	4.2
2	4.1	4.0
3	3.4	3.0
4	9.1	9.1
5	1.3	1.3
6	0	0
7	4.1	4.1
8	4.6	4.6
9	1.3	1.3
10	4.9	5.3
11	0.1	0.1
12	5.1	5.1
13	4.2	4.2
14	4.2	4.2
15	4.1	4.1
16	4.2	4.1
17	0.1	0.1
18	0.7	0.7
19	0	5.1
20	4.1	4.1
21	1.9	1.9

MODE / PIN NO.	REC	PLAY
22	4.2	4.2
23	4.2	4.2
24	4.2	4.2
25	4.2	4.2
26	1.9	1.9
27	4.2	4.2
28	4.1	4.1
29	4.2	4.2
30	4.1	4.1
IC9201		
1	2.8	3.1
2	2.8	3.7
3	4.4	5.1
4	5.1	4.4
5	0	0
6	4.4	5.1
7	5.1	4.4
8	3.7	2.8
9	3.1	2.8
Q431		
E	2.2	2.2
C	0	0
B	1.6	1.6
Q501		
E	0	0
C	71.2	71.2
B	0.4	0.4
Q571		
E	1.4	1.4
C	10.5	10.5
B	1.8	1.8
Q581		
E	115.2	115.2
C	0	0
B	114.8	114.8
Q801		
E	0	0
C	0.2	0.2
B	0.8	0.8
Q802		
E	0	0
C	132.7	133.3
B	0.3	0.3
U802		
E	11.8	11.8
C	17.1	17.2
B	12.4	12.4
Q807		
E	0	0
C	0.3	0.3
B	0.4	0.4
Q810		
E	7.7	7.7
C	12.9	13.1

MODE / PIN NO.	REC	PLAY
B	8.1	7.9
Q812		
E	0	0
C	0.2	0.2
B	0.8	0.8
U803		
E	13.8	13.8
C	17.1	17.2
B	14.4	14.3
Q815		
E	0	0
C	14.3	14.3
B	0.7	0.7
Q817		
E	-0.6	-0.6
C	4.2	4.2
B	0	0
Q819		
E	5.3	5.3
C	5.2	5.2
B	4.7	4.7
Q820		
E	4.6	4.6
C	0	0
B	4.2	4.2
Q821		
E	0	0
C	0	0
B	0.7	0.7
Q822		
E	0	0
C	0.7	0.7
B	0.2	0.2
Q823		
E	0	0
C	12.4	12.4
B	0.7	0.7
Q3001		
E	1.6	1.6
C	0	0
B	1.0	1.0
Q3002		
E	2.8	2.8
C	4.6	4.6
B	3.4	3.4
Q3311		
E	0	2.4
C	0	0
B	1.7	1.7
Q3310		
E	0	0
C	4.2	4.2
B	-0.3	-0.3
Q3314		
E1	1.5	1.5

MODE / PIN NO.	REC	PLAY
C1	5.1	5.1
B1	2.1	2.1
E2	1.5	1.5
C2	1.7	1.7
B2	2.1	2.1
Q3315		
E	5.2	5.2
C	5.0	5.0
B	1.7	1.7
Q4001		
E	5.1	5.1
C	-19.6	5.1
B	5.1	4.4
Q4002		
E	-11.3	0
C	0	0
B	-19.8	0.8
Q4003		
E	-14.3	0
C	0	0
B	-19.5	0.8
Q4031		
E	5.2	0
C	5.2	5.2
B	5.9	5.9
Q4101		
E	0	0
C	10.9	0.6
B	0.2	0.6
Q4171		
E	0	0
C	0	0
B	0.1	0.1
Q4173		
E	2.5	2.5
C	0.5	0.5
B	0	0
Q4201		
E	0	0
C	0	0
B	0.2	0.2
Q4202		
E	0	0
C	0	0
B	0.2	0.2
Q5301		
E	3.2	3.4
C	9.2	9.2
B	3.8	4.0
Q5901		
E	9.2	9.2
C	11.9	11.9
B	9.8	9.8
Q9001		
E	0	4.4

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

MODE / PIN NO.	REC	PLAY
C	5.1	5.1
B	0	5.1
Q9002		
E	0	0
C	0	0
B	0.2	0.8
TP501	114.9	114.9
TP502	0	0
TP503	21.9	22.0
TP504	5.3	5.3
TP551	-20.5	-21.2
TP552	-21.3	-22.2
TP556	200.2	200.2
TP558	26.9	26.9
TP559	16.2	16.2
TP801	64.1	64.1
TP802	64.2	64.2
TP803	2.6	2.6
TP804	0	0
TP805	0.2	0.2
TP806	64.1	64.1
TP807	64.2	64.2
TP808	5.3	5.3
TP809	5.2	5.2
TP810	0.2	0.2
TP1054	5.2	5.2
TP1201	11.8	11.8
TP1203	115.2	115.2
TP1204	17.2	17.2
TP1206	-16.5	-16.5
TP1207	40.8	40.8
TP1208	0	0
TP1209	8.0	7.9
TP3001	1.7	1.7
TP3002	2.7	2.3
TP3003	3.3	3.3
TP3004	2.0	2.3
TP3005	2.6	2.6
TP3006	2.5	2.5
TP3007	2.6	2.6
TP3008	2.3	2.4
TP3009	0	0
TP3010	3.0	3.0
TP3011	2.7	2.7
TP3012	3.0	3.0
TP3301	3.6	3.6
TP3302	2.7	2.7
TP4001	0	0
TP4002	0	0
TP4003	0	0
TP4004	0	0
TP4201	0	0
TP4202	0	0
TP4205	2.6	0.1

MODE / PIN NO.	REC	PLAY
TP4206	2.6	2.6
TP4207	1.8	1.8
TP4208	2.6	2.6
TP4501	0	0
TP4502	16.1	16.1
TP4503	6.7	6.7
TP4504	0.8	0.9
TP4591	6.7	6.7
TP4592	0.8	0.8
TP5301	3.7	3.7
TP5302	3.6	3.6
TP5303	3.5	3.6
TP5304	11.9	11.9
TP5305	3.2	3.3
TP5306	0	0
TP5307	0	0
TP5308	1.6	1.6
TP5309	1.7	1.7
TP5310	7.6	7.6
TP5311	5.1	5.1
TP5401	3.8	3.8
TP5402	1.6	1.7
TP5403	0	
TP5501	0.7	0.7
TP5502	0.1	0.1
TP5503	1.8	1.8
TP5504	4.3	4.3
TP5505	0	0
TP5506	5.3	5.3
TP9001	4.2	4.2
TP9002	4.2	4.2
TP9003	0	0
TP9201	5.1	5.1

MAIN C.B.A. (SYSTEM CONTROL/SERVO SECTION)

MODE / PIN NO.	REC	PLAY	STOP
IC2601			
1	13.2	13.3	13.5
2	13.2	13.3	13.5
3	13.7	13.8	14.0
4	1.2	1.2	1.3
5	5.2	5.2	5.3
6	0.9	0.9	1.0
7	1.0	1.0	1.0
8	0.6	0.6	0.6
9	2.7	2.7	2.9
10	1.5	1.5	1.6
11	0	0	0
12	3.9	3.9	3.9
13	3.9	3.9	3.9
14	3.9	3.9	3.9
15	0.1	0.1	0.1
16	13.2	13.3	13.5
IC6001			
1	5.0	5.0	5.0
2	0	0	0
3	0	0	0
4	---	---	---
5	5.1	2.4	2.4
6	1.0	0.8	0.8
7	0	0	0
8	0	0	0
9	2.5	2.5	4.1
10	2.4	2.4	0
11	4.9	4.9	4.9
12	4.1	4.3	4.3
13	4.8	4.8	4.8
14	5.2	5.1	5.2
15	0	0	0
16	5.1	5.1	5.1
17	0	0	0
18	---	---	---
19	---	---	---
20	5.2	5.1	5.2
21	0	0	0
22	0	0	0
23	2.6	2.6	2.6
24	2.6	2.6	2.6
25	4.5	4.5	4.5
26	5.2	5.2	5.2
27	5.1	5.1	5.1
28	5.1	5.1	5.1
29	2.6	2.6	2.6
30	5.2	5.2	5.2
31	0	0	0
32	5.2	5.2	5.2
33	5.3	5.1	5.3
34	5.2	5.1	5.2
35	0	4.5	0
36	0	0	0
37	0	0	5.1

MODE / PIN NO.	REC	PLAY	STOP
38	5.2	5.1	0
39	0	0	5.1
40	0	0	0
41	5.2	5.2	5.2
42	0	0	0
43	5.2	5.2	5.2
44	0	0	0
45	4.1	4.1	4.1
46	4.9	4.9	4.9
47	5.1	5.1	5.1
48	5.2	5.2	5.2
49	5.1	0	0
50	5.2	0	5.2
51	0	0	0
52	5.2	5.2	5.2
53	0	0	0
54	0	0	0
55	0	0	0
56	0	0	0
57	0.4	0.4	0.4
58	5.3	5.3	5.3
59	5.2	5.2	5.2
60	0	0	0
61	5.2	5.2	5.2
62	0	0	0
63	0.3	0.3	0.3
64	5.0	4.9	5.0
65	5.2	5.3	5.3
66	0	0	0
67	0	0	0
68	0	0	0
69	5.2	5.3	5.3
70	5.2	5.3	5.3
71	0	0	0
72	2.6	2.6	2.6
73	5.3	5.3	5.3
74	5.3	5.3	5.3
75	5.3	5.3	5.3
76	5.3	5.3	5.3
77	3.6	3.6	3.6
78	5.1	5.2	5.2
79	5.2	5.2	5.2
80	5.2	5.2	5.2
81	3.4	3.0	3.4
82	0	0	0
83	0	0	0
84	0	0	0
85	3.0	2.6	2.6
86	2.1	2.6	2.6
87	2.6	2.6	2.6
88	2.6	2.6	2.6
89	2.6	2.6	2.6
90	2.6	2.6	2.6
91	0	0	0
92	5.2	5.2	5.2

MODE / PIN NO.	REC	PLAY	STOP
93	---	0	0
94	2.6	2.6	2.6
95	2.6	2.6	2.6
96	0	0	0
97	1.2	1.2	1.2
98	---	---	---
99	---	---	---
100	2.1	2.1	2.1
IC6002			
1	1.3	1.3	1.3
2	0	0	0
3	0	0	0
4	---	---	---
IC6003			
1	2.4	2.4	2.4
2	1.3	1.3	1.3
3	0	0	0
4	---	---	---
IC6004			
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	5.1	5.1	5.1
6	5.0	5.0	5.1
7	0	0	0
8	5.1	5.1	5.1
Q6002			
E	11.8	11.8	11.8
C	11.6	0.5	0.5
B	11.0	11.8	11.8
Q6003			
E	4.5	0	0
C	11.0	11.8	11.8
B	5.0	0	0
Q6004			
E	5.3	5.3	5.3
C	5.1	5.1	5.1
B	4.3	4.3	4.3
Q6005			
E	0	0	0
C	0	0	0
B	0.8	0.8	0.8
Q6006			
E	5.1	5.1	5.1
C	5.1	5.1	5.1
B	0	0	0
Q6007			
E	0	0	0
C	5.1	5.1	5.1
B	0	0	0
Q6009			
E	0	0	0
C	5.1	5.1	5.1

MODE / PIN NO.	REC	PLAY	STOP
Q6010			
E	0	0	0
C	5.1	5.1	5.1
TP6001	5.1	5.1	5.1
TP6002	5.1	5.2	5.2
TP6003	3.4	3.0	3.0
TP6004	---	---	---
TP6005	---	---	---
TP6006	0	0	0
TP6008	0	0	0
TP6009	5.2	5.2	5.2
TP6013	5.1	2.5	2.5
TP6021	0	0	5.1
TP6022	5.1	5.1	0
TP6023	0	0	5.1
TP6201	2.4	2.4	0
TP6202	2.5	2.5	4.1
TP6203	2.6	2.6	2.6
TP6204	1.2	1.2	1.2
TP6205	2.6	2.6	2.6
TP6206	3.0	2.6	2.6
TP6207	2.6	2.6	2.6
TP6208	2.5	2.5	4.1
TP6209	2.6	2.6	2.6
TP6210	0	0	0
TP6211	2.7	2.7	4.1

CAPSTAN STATOR C.B.A.

MODE / PIN NO.	REC	PLAY	STOP
P2502			
1	13.6	13.6	14.3
2	5.2	5.2	5.2
3	5.3	5.3	5.3
4	2.5	2.4	2.6
5	0	0	0
6	2.6	2.6	2.6
7	0	0	0
8	0.5	0.5	0.5
9	2.6	2.6	2.6
10	0.1	0.1	2.6
11	0	0	0
12	0	0	0
P2503			
1	1.8	1.7	1.5
2	1.8	1.7	1.5

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

HEAD AMP C.B.A.
(A, B, C, D, E, H, I, J, K,)

MODE / PIN NO.	REC	PLAY
IC3501		
1	2.6	2.6
2	0	0
3	0	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0	1.4
8	0	0
9	0	0
10	0	0
11	0	0
12	0	0
13	---	---
14	5.9	0.1
15	5.9	0.1
16	5.9	0.1
17	5.9	0.1
18	6.3	0
19	---	---
20	---	---
21	---	---
22	0	0
23	0	0
24	0	0
25	11.8	0
26	0	0
27	0	0
28	0	0
29	0	0
30	2.7	0
31	5.1	0
32	0	0
33	0	0
34	0	0
35	11.9	12.0
36	0.3	4.9
TP3501	0	0

HEAD AMP C.B.A.
(F,G,L)

MODE / PIN NO.	REC	PLAY
IC3501		
1	2.6	2.6
2	0.2	4.2
3	0	1.4
4	0	0.7
5	0	0
6	0	0.7
7	0	1.4
8	0	0
9	0	0
10	0	2.1
11	0	0
12	0	0
13	0	0
14	0	0
15	0	0
16	5.9	0
17	5.9	0.1
18	6.3	0
19	---	---
20	---	---
21	---	---
22	---	---
23	---	---
24	---	---
25	11.8	0
26	5.0	5.2
27	0	0
28	0	0
29	0	0
30	2.7	0
31	5.1	0
32	5.0	0.3
33	0	0
34	0.2	0.4
35	11.9	12.0
36	0.3	4.9
TP3501	0	0

AUDIO C.B.A.
(L)

MODE / PIN NO.	REC	PLAY
IC9001		
1	4.2	4.2
2	4.1	4.1
3	4.2	4.2
4	9.1	9.1
5	2.4	2.4
6	0	0
7	4.2	4.2
8	3.7	3.7
9	1.3	1.3
10	4.0	4.0
11	4.0	4.0
12	4.0	4.0
13	5.0	5.0
14	4.3	4.3
15	4.1	4.1
16	4.2	4.2
17	0	0
18	5.2	5.2
19	0	0
20	4.1	4.1
21	1.8	1.8
22	4.2	4.2
23	4.2	4.2
24	4.2	4.2
25	4.2	4.2
26	1.8	1.8
27	4.2	4.2
28	3.3	3.3
29	4.2	4.2
30	4.1	4.1
IC9201		
1	3.1	3.1
2	3.7	3.7
3	5.1	5.1
4	4.2	4.2
5	0	0
6	5.1	5.1
7	4.5	4.5
8	2.8	2.8
9	2.8	2.8
IC9301		
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	-5.7	-5.7
8	0	0
9	4.3	4.3
10	0	0
11	4.3	4.3
12	0	0
13	0.2	0.2
14	0.2	0.2
15	---	---
16	5.1	5.1
IC9302		
1	0	0
2	0	0
3	0	0
4	-5.7	-5.7
5	0	0
6	0	0
7	0	0
8	5.1	5.1
Q9001		
E	0	0
C	0	0
B	3.8	3.8
Q9002		
E	4.1	4.1
C	9.2	9.2
B	4.7	4.7
Q9003		
E	4.1	4.1
C	9.2	9.2
B	4.2	4.2
Q9004		
E	4.1	4.1
C	9.2	9.2
B	4.2	4.2
TP9001	4.7	4.7
TP9002	4.7	4.7
TP9003	0	0
TP9004	4.6	4.6
TP9201	5.2	5.2

CRT C.B.A.
(A, B, C, D, E, F, G)

MODE / PIN NO.	REC	PLAY
Q351		
E	3.6	3.6
C	117.5	117.5
B	4.0	4.0
Q352		
E	3.5	3.5
C	120.0	120.0
B	3.9	3.9
Q353		
E	3.7	3.7
C	119.0	119.0
B	3.9	3.9
TP47	0	0
TP49	3.9	3.9
TP50	119.0	119.0

CRT C.B.A.
(H, I, J, K, L)

MODE / PIN NO.	REC	PLAY
Q351		
E	3.7	3.7
C	137.0	137.0
B	4.0	4.0
Q352		
E	3.5	3.5
C	143.0	143.0
B	3.8	3.8
Q353		
E	3.7	3.7
C	138.5	138.5
B	4.0	4.0
TP47	0	0
TP49	4.0	4.0
TP50	139.0	139.0

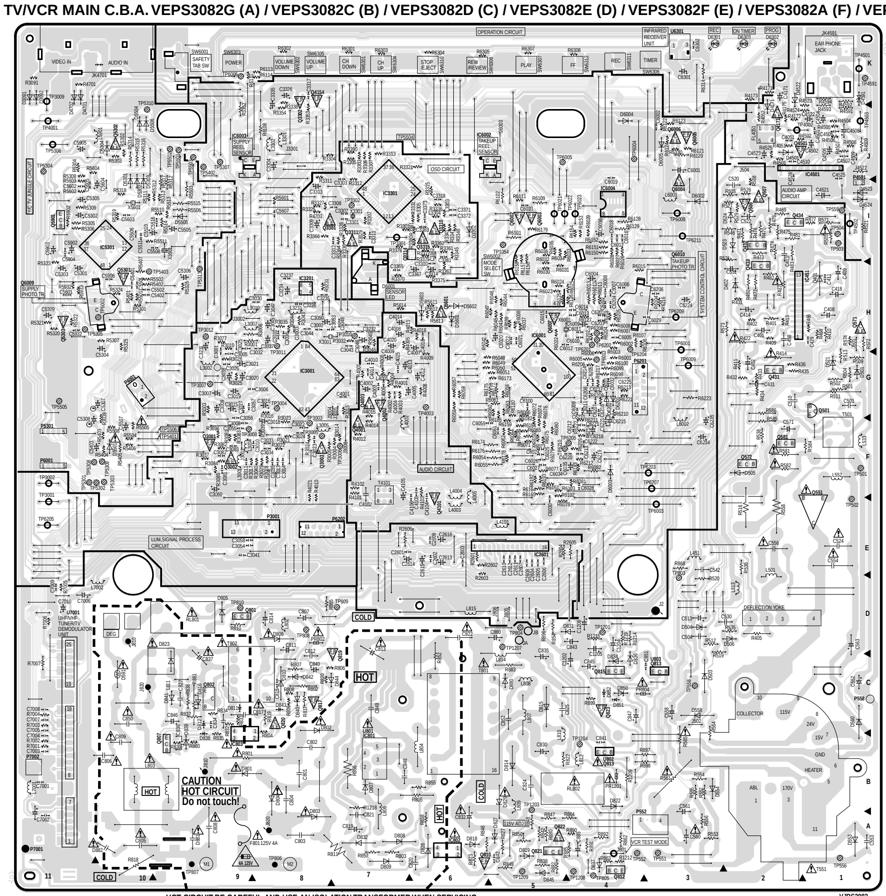
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

9 CIRCUIT BOARD LAYOUT

9.1. TV/VCR MAIN C.B.A. (A, B, C, D, E, F, G)

TV/VCR MAIN C.B.A. VEPS3082G (A) / VEPS3082C (B) / VEPS3082D (C) / VEPS3082E (D) / VEPS3082F (E) / VEPS3082A (F) / VEPS3082B (G)



HOT CIRCUIT.BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

VJBS3082

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.6A 125V

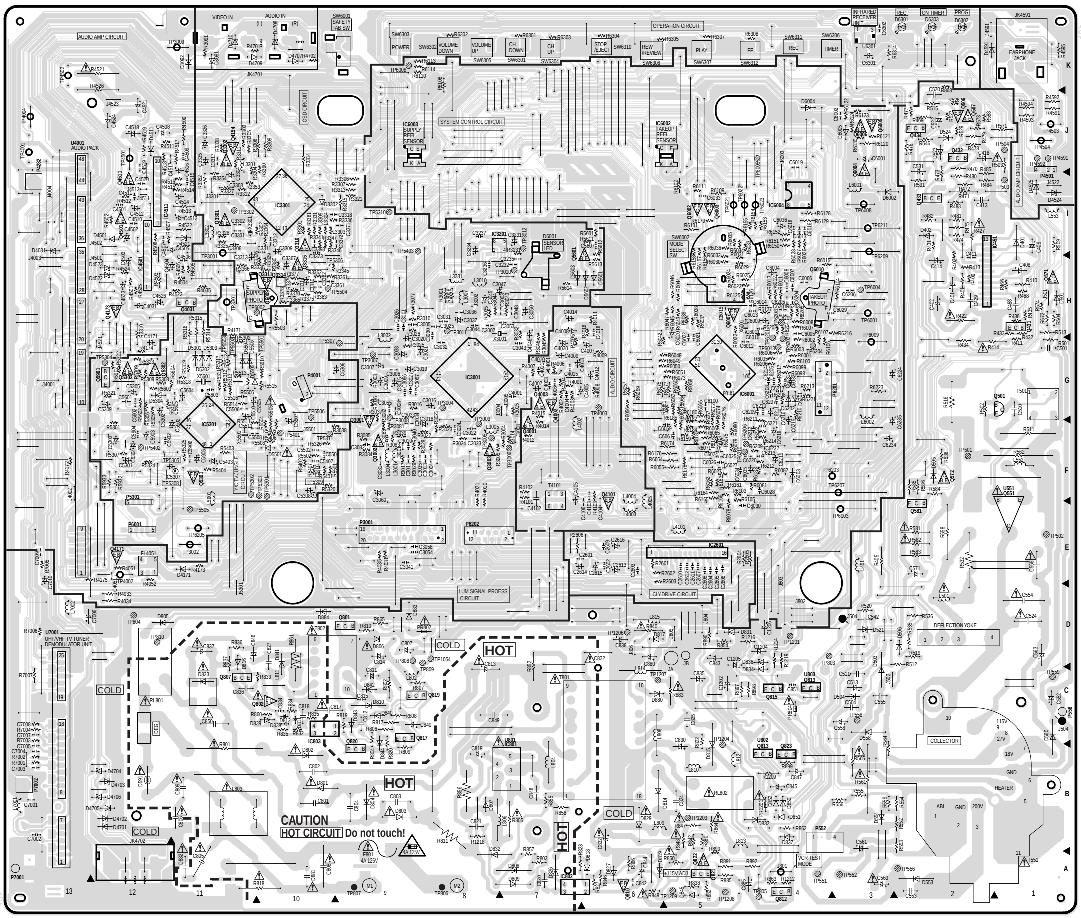
1.6A 125V

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

9.2. TV/VCR MAIN C.B.A. (H, I, J, K, L)

TV/VCR MAIN C.B.A. VEPS3080D (H, K) / VEPS3080B (I) / VEPS3080C (J) / VEPS3080A (L)



HOT CIRCUIT.BE CAREFUL AND USE AN ISOLATION TRANSFORMER WHEN SERVICING.

VJBS3080

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

IMPORTANT SAFETY NOTICE:
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

1.6A 125V

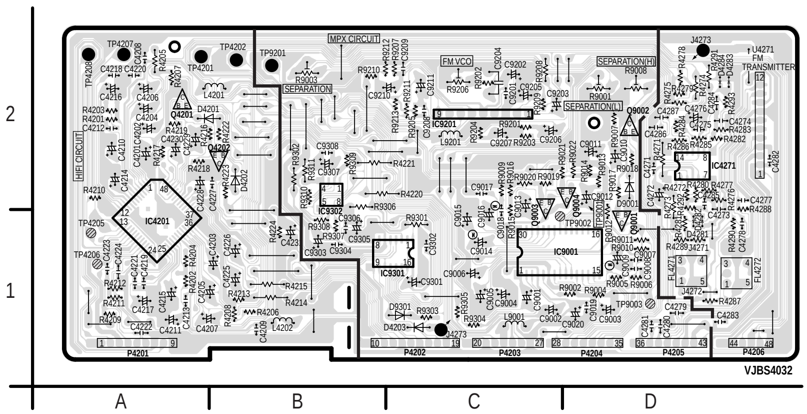
CAUTION: FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE 1.6A 125V FUSE.
ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQUES D'T INCENDIE N'I UTILISERQUE DES FUSIBLE DE MÉME TYPE 1.6A 125V

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

9.3. AUDIO C.B.A. (L) / HEAD AMP C.B.A.

AUDIO C.B.A. VEPS4032A (L)



NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES, REFER TO BEGINNING OF SCHEMATIC SECTION.

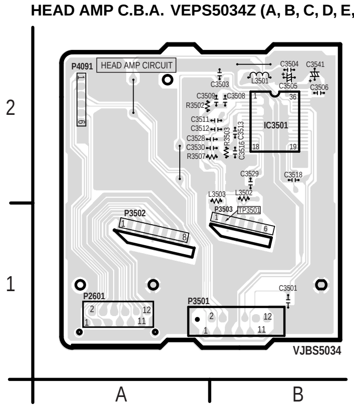
NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

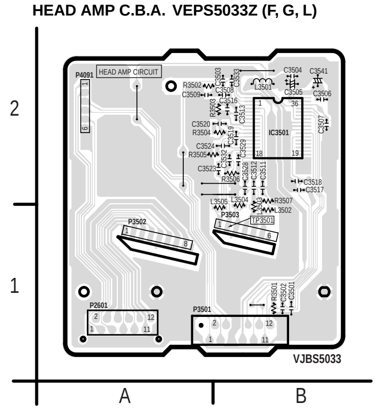
HEAD AMP C.B.A. VEPS5034Z (A, B, C, D, E, H, I, J, K)



NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

HEAD AMP C.B.A. VEPS5033Z (F, G, L)



NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS. FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING, PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

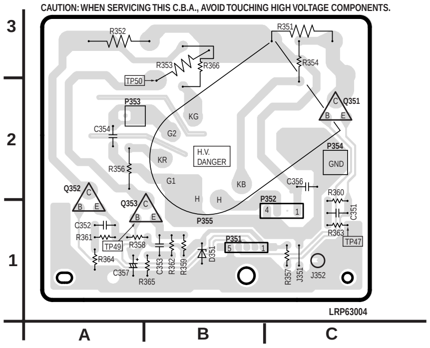
9.4. CRT C.B.A. / CAPSTAN STATOR C.B.A. / AUDIO CONTROL HEAD P.C.B.

CRT C.B.A. LRP63004A (A, B, C, D, E, F, G)

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

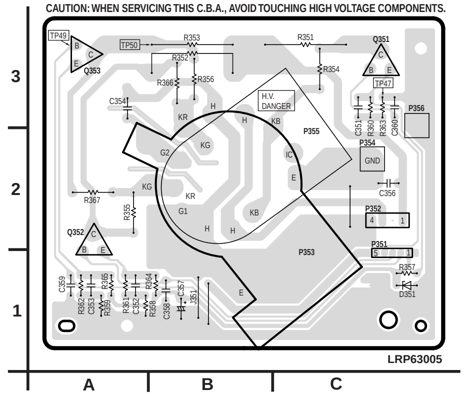
NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

CAUTION: WHEN SERVICING THIS C.B.A., AVOID TOUCHING HIGH VOLTAGE COMPONENTS.



CRT C.B.A. LRP63005A (H, I, J, K, L)

CAUTION: WHEN SERVICING THIS C.B.A., AVOID TOUCHING HIGH VOLTAGE COMPONENTS.

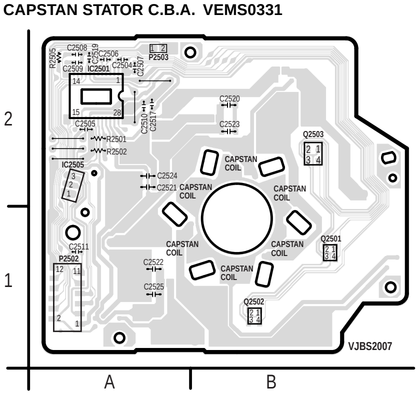


NOTE:
FOR SCHEMATIC DIAGRAM AND CIRCUIT BOARD LAYOUT NOTES,
REFER TO BEGINNING OF SCHEMATIC SECTION.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

CAPSTAN STATOR C.B.A. VEMS0331



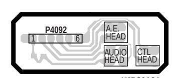
NOTE:
WHEN INSTALLING THE IC2501(AN3845SC) OR CAPSTAN STATOR C.B.A., BE SURE
TO APPLY SILICON GREASE(VFK1301). REFER TO "CAPSTAN STATOR C.B.A."
OF MACHANISM SECTION IN DISASSEMBLY/ASSEMBLY PROCEDURES.

NOTE:
CIRCUIT BOARD LAYOUT SHOWS COMPONENTS INSTALLED FOR VARIOUS MODELS.
FOR PROPER PARTS CONTENT FOR THE MODEL YOU ARE SERVICING,
PLEASE REFER TO THE SCHEMATIC DIAGRAM AND PARTS LIST.

NOTE:
CIRCUIT BOARD LAYOUT INCLUDES COMPONENTS WHICH ARE NOT USED.

NOTE:
THE FOLLOWING PARTS ON THE CAPSTAN STATOR C.B.A. ARE NOT SUPPLIED SEPARATELY.
PLEASE ORDER AND REPLACE WITH THE CIRCUIT BOARD ASSEMBLY INSTEAD OF INDIVIDUAL PARTS.
(Q2501, Q2502, Q2503, CAPSTAN COIL)

AUDIO CONTROL HEAD P.C.B.

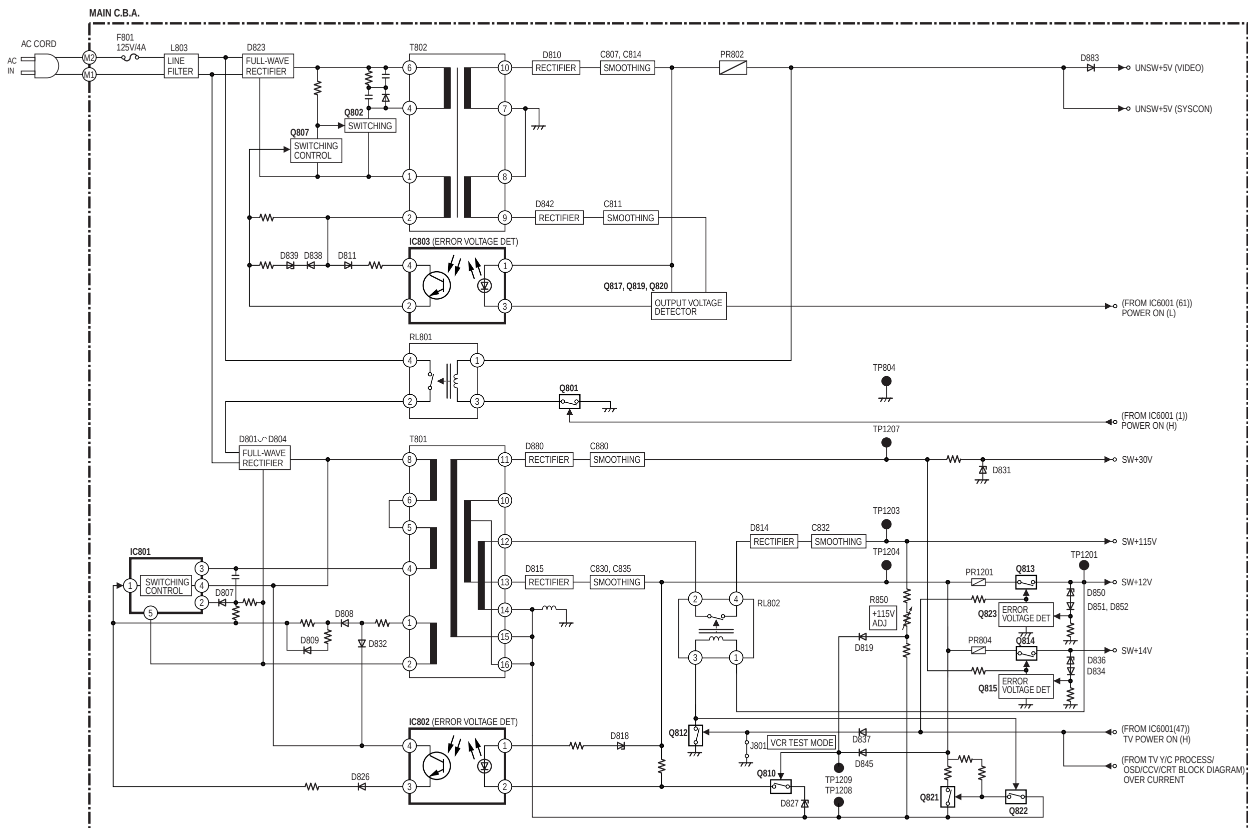


COMPARISON CHART
OF MODELS & MARKS

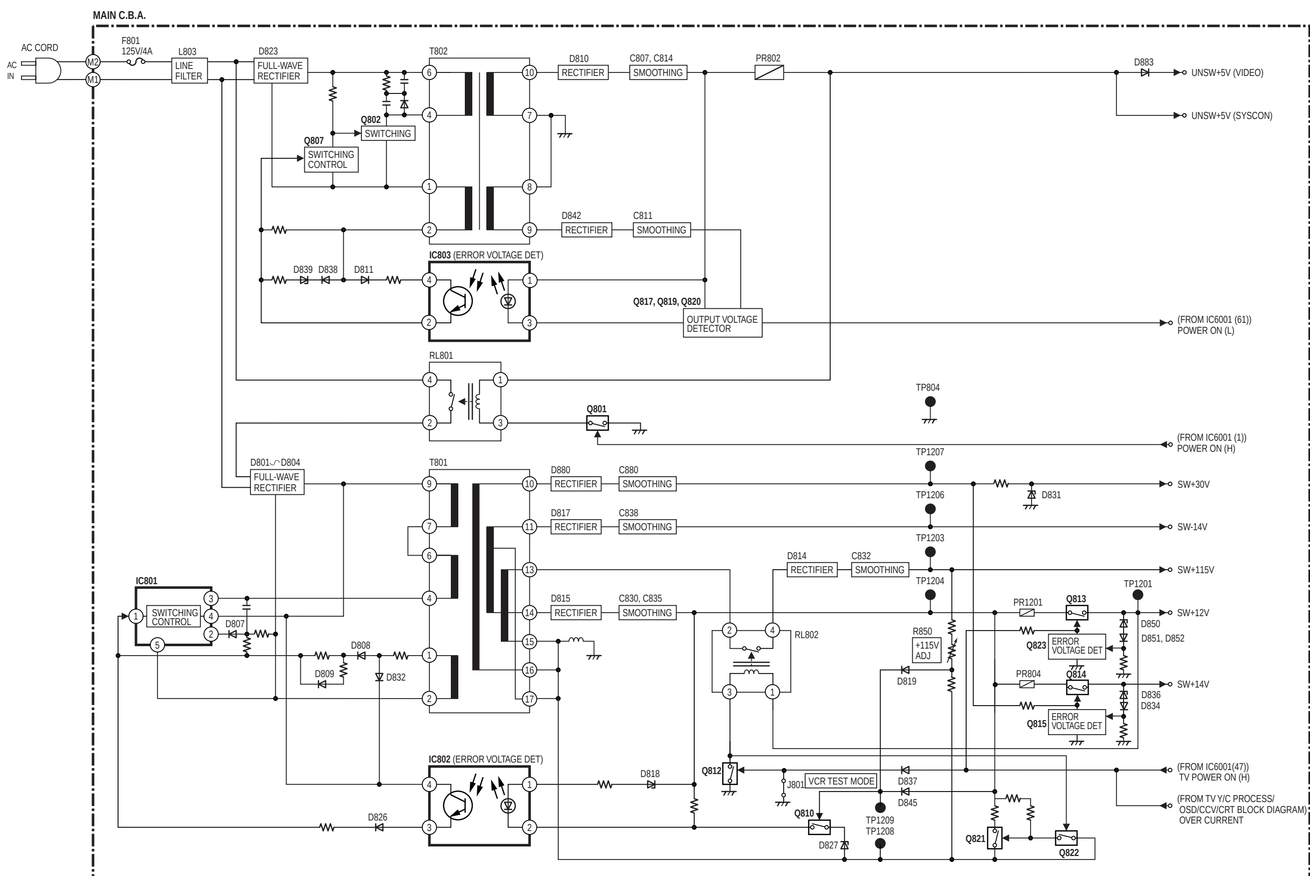
MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

10 BLOCK DIAGRAMS

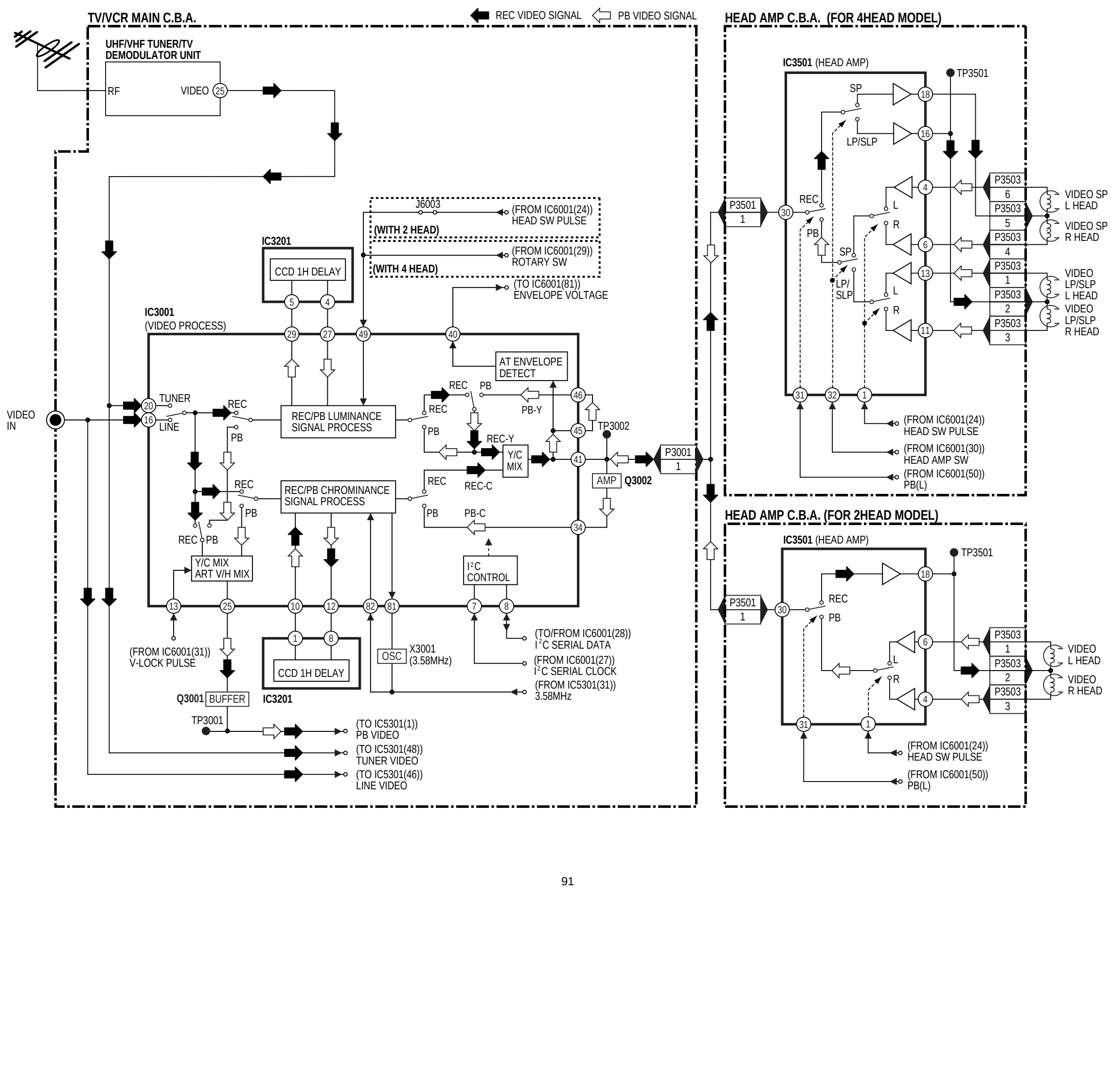
10.1. POWER SUPPLY BLOCK DIAGRAM (FOR 13 inch MODEL)



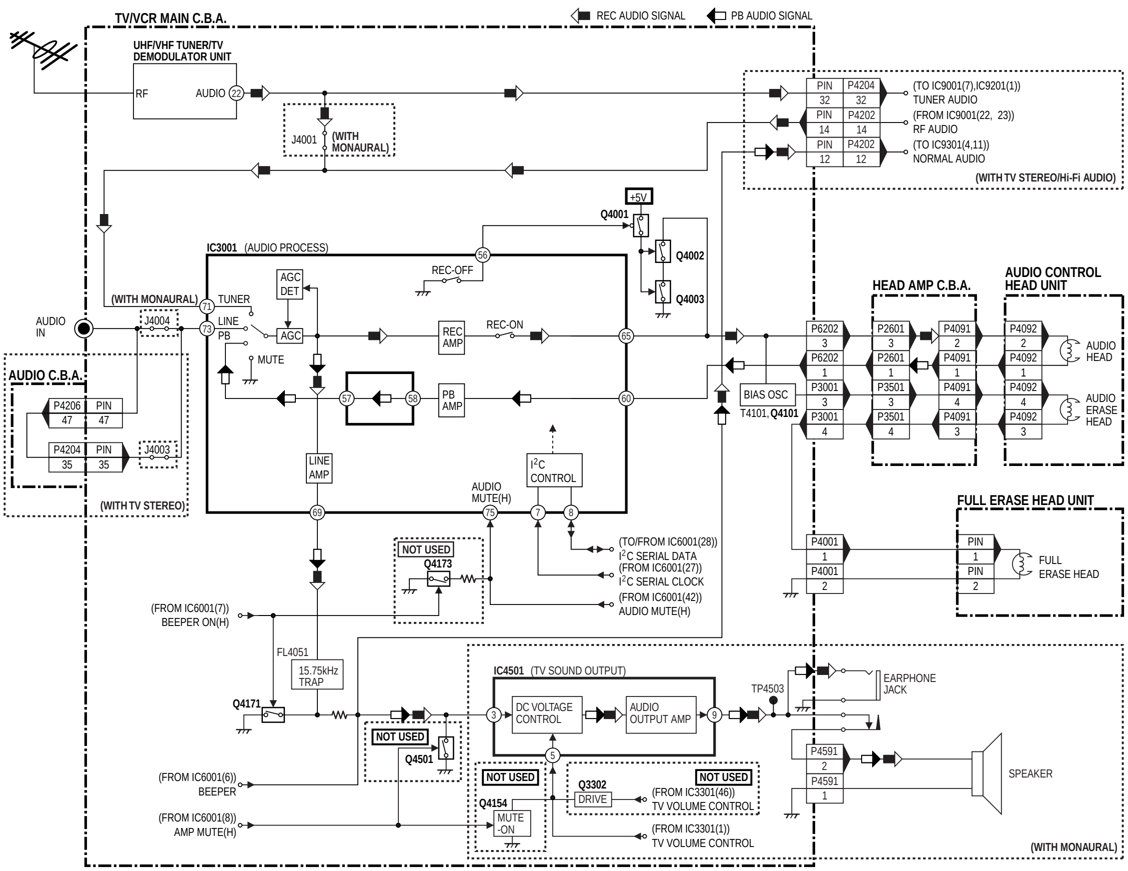
10.2. POWER SUPPLY BLOCK DIAGRAM (FOR 20 inch MODEL)



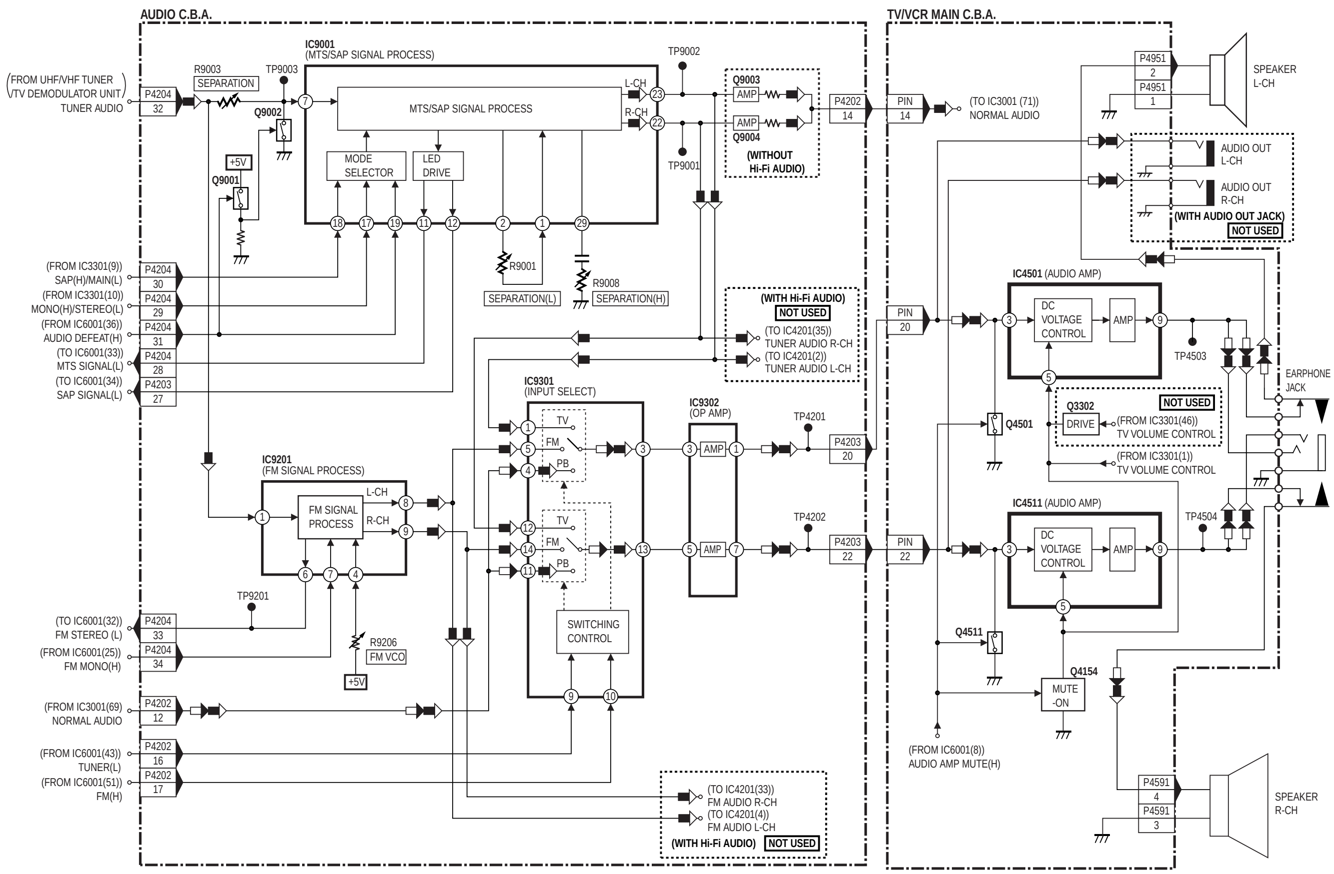
10.3. VIDEO SIGNAL PATH BLOCK DIAGRAM



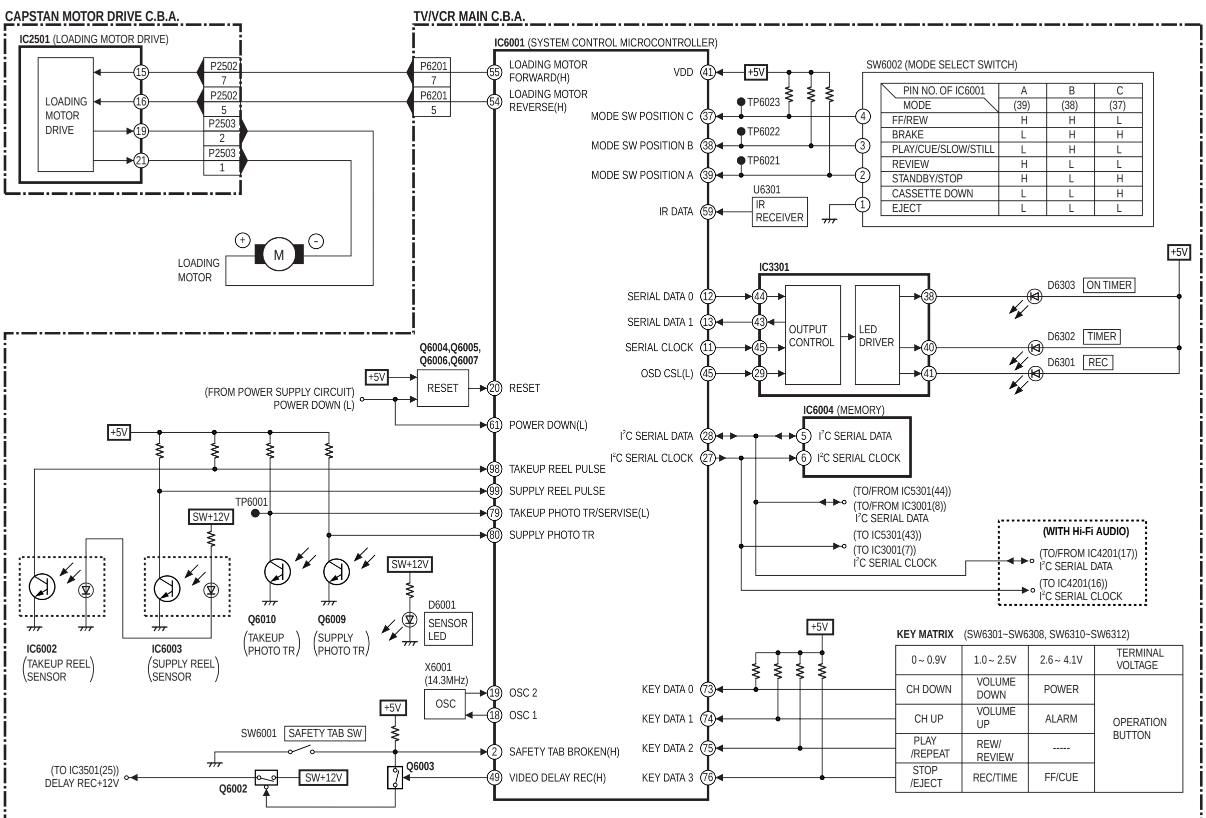
10.4. AUDIO SIGNAL PATH BLOCK DIAGRAM



10.5. MTS/SAP AUDIO / AUDIO AMP BLOCK DIAGRAM



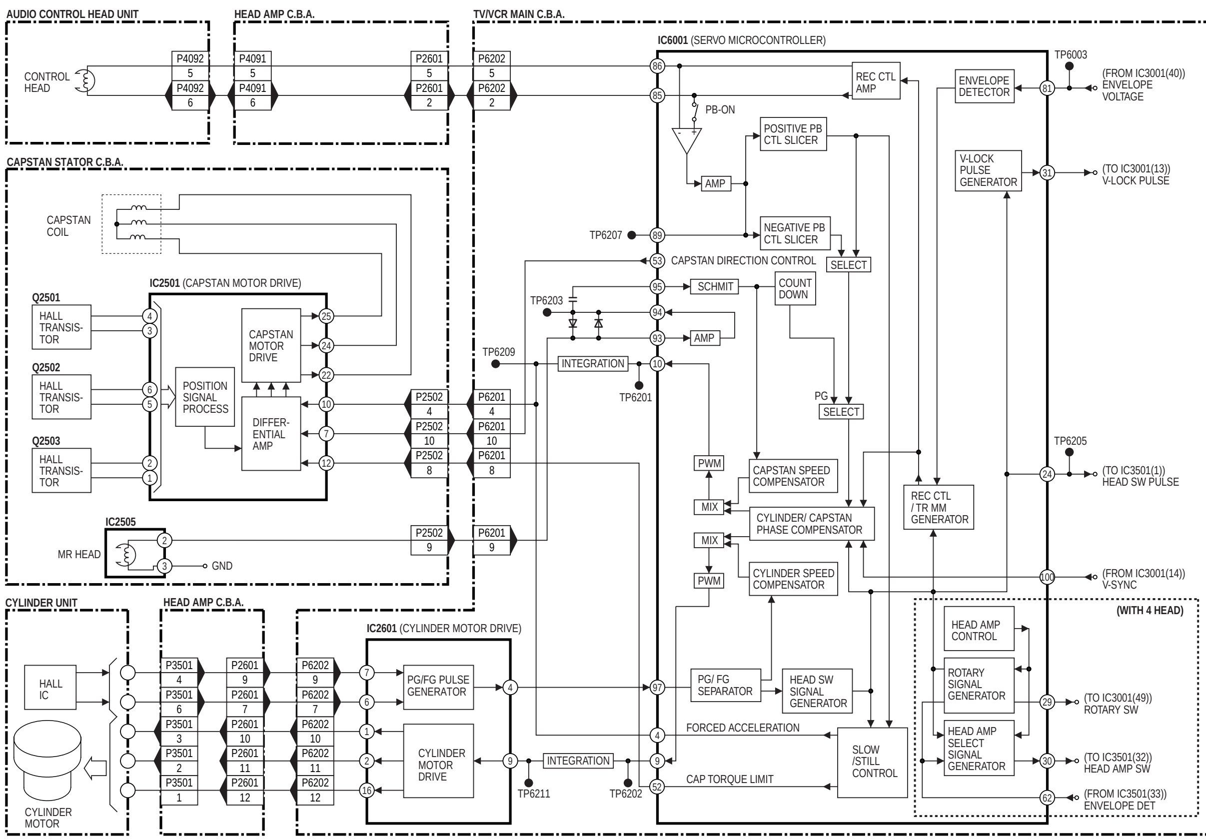
10.6. SYSTEM CONTROL BLOCK DIAGRAM



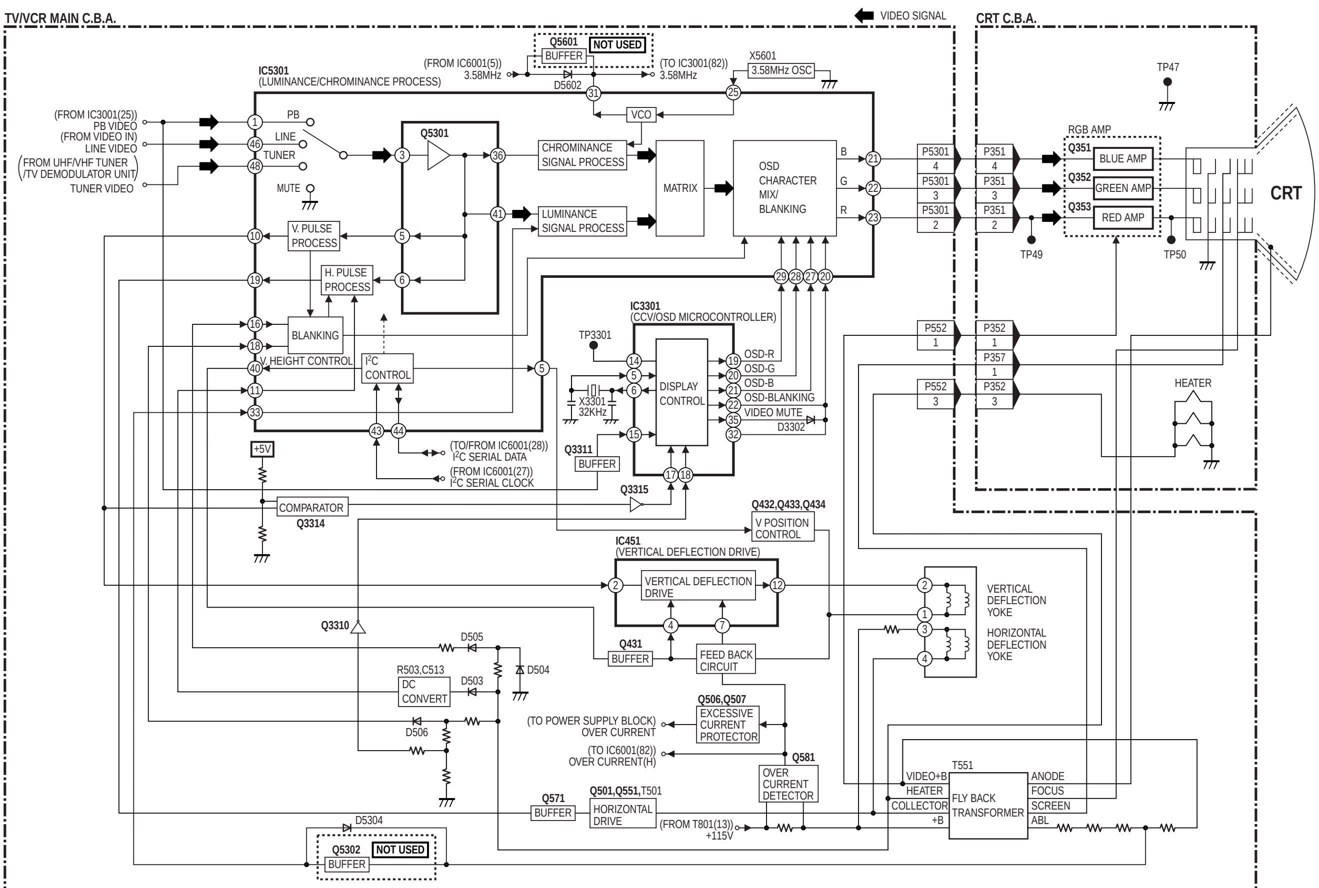
PIN NO. OF IC6001 / MODE	A (39)	B (38)	C (37)
FF/REW	H	H	L
BRAKE	L	H	H
PLAY/CUE/SLOW/STILL	L	H	L
REVIEW	H	L	L
STANDBY/STOP	H	L	H
CASSETTE DOWN	L	L	H
EJECT	L	L	L

0 ~ 0.9V	1.0 ~ 2.5V	2.6 ~ 4.1V	TERMINAL VOLTAGE
CH DOWN	VOLUME DOWN	POWER	OPERATION BUTTON
CH UP	VOLUME UP	ALARM	
PLAY /REPEAT	REW/ REVIEW	-----	
STOP /EJECT	REC/TIME	FF/CUE	

10.7. SERVO BLOCK DIAGRAM



10.8. TV/YC PROCESS BLOCK DIAGRAM



11 EXPLODED VIEWS

11.1. MECHANISM (TOP) SECTION

❶ MECHANISM (TOP) SECTION

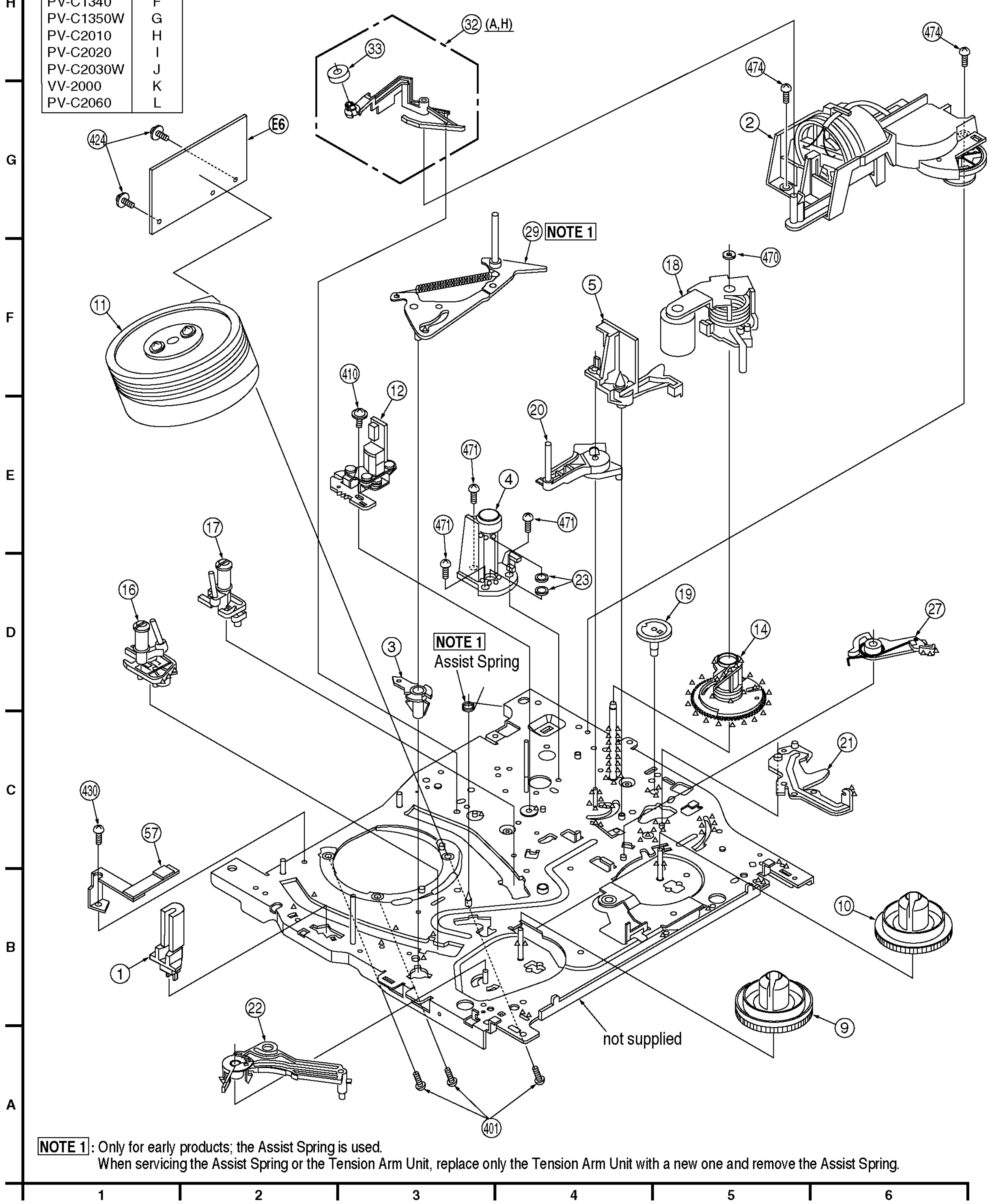
COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
○○○	Spindle Oil	Purchase from Local Supplier	- - - - - - - -
△△△	Grease	Available from Factory	VFKS0081

Note: Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

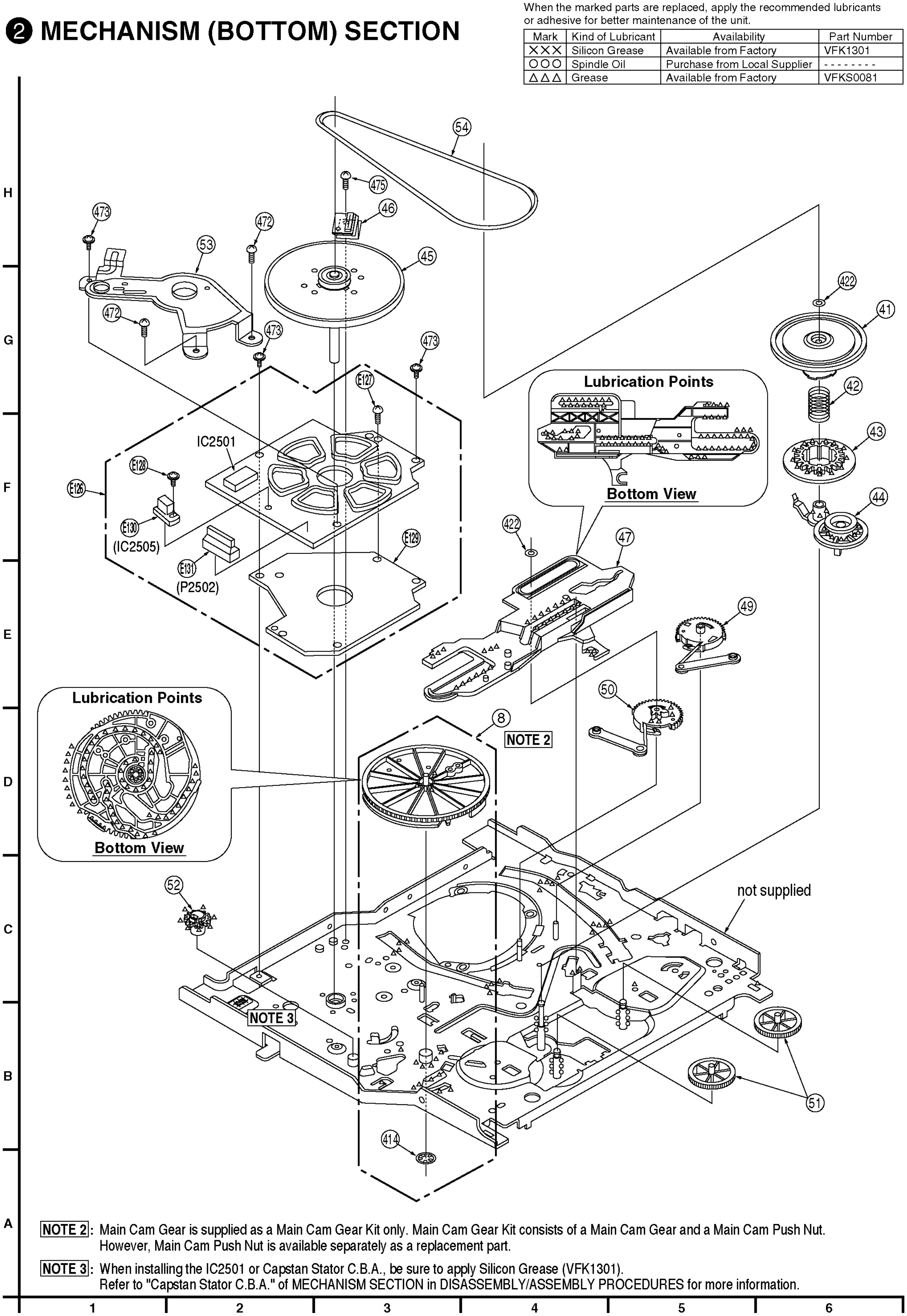


NOTE 1 : Only for early products; the Assist Spring is used.
When servicing the Assist Spring or the Tension Arm Unit, replace only the Tension Arm Unit with a new one and remove the Assist Spring.

11.2. MECHANISM (BOTTOM) SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
×××	Silicon Grease	Available from Factory	VFK1301
○○○	Spindle Oil	Purchase from Local Supplier	- - - - - - - -
△△△	Grease	Available from Factory	VFKS0081



NOTE 2: Main Cam Gear is supplied as a Main Cam Gear Kit only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.

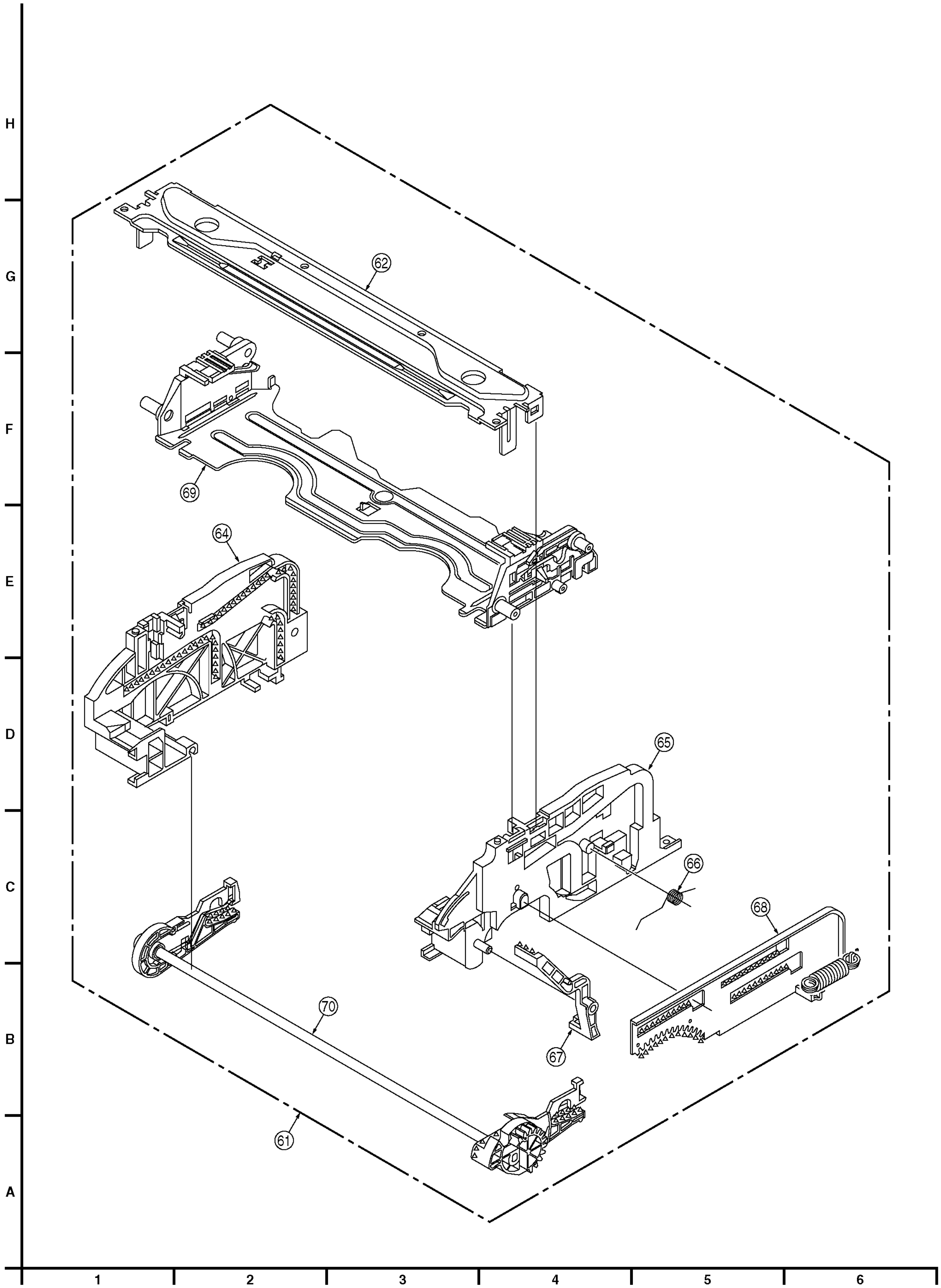
NOTE 3: When installing the IC2501 or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator C.B.A." of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES for more information.

11.3. CASSETTE UP COMPARTMENT SECTION

LUBRICATION POINTS
When the marked parts are replaced, apply the recommended lubricants or adhesive for better maintenance of the unit.

Mark	Kind of Lubricant	Availability	Part Number
△△△	Grease	Available from Factory	VFKS0081

❸ CASSETTE UP COMPARTMENT SECTION



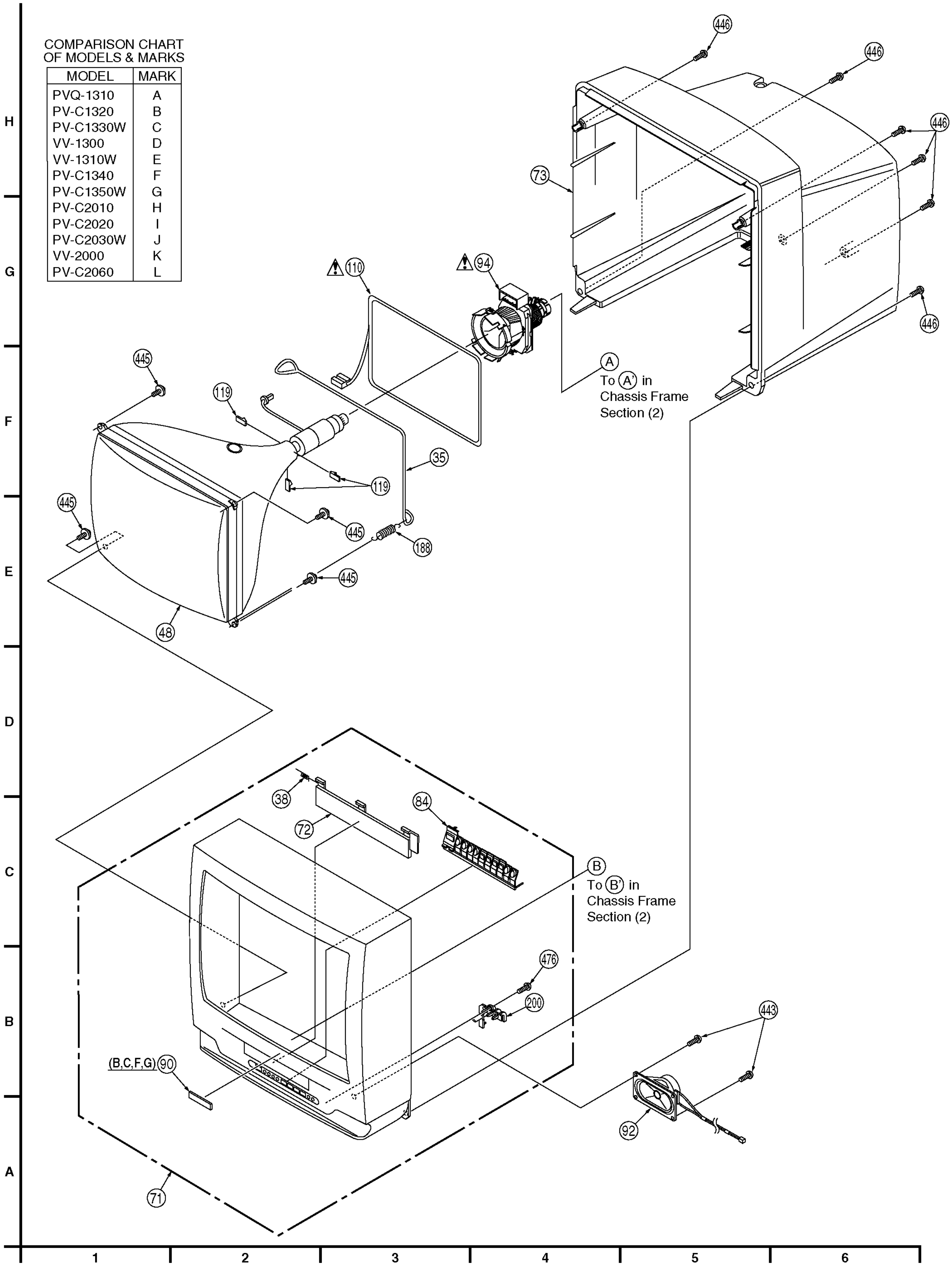
11.4. CHASSIS FRAME SECTION (1) (A, B, C, D, E, F, G)

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

❹ CHASSIS FRAME SECTION (1)
(Model: A, B, C, D, E, F, G)

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L



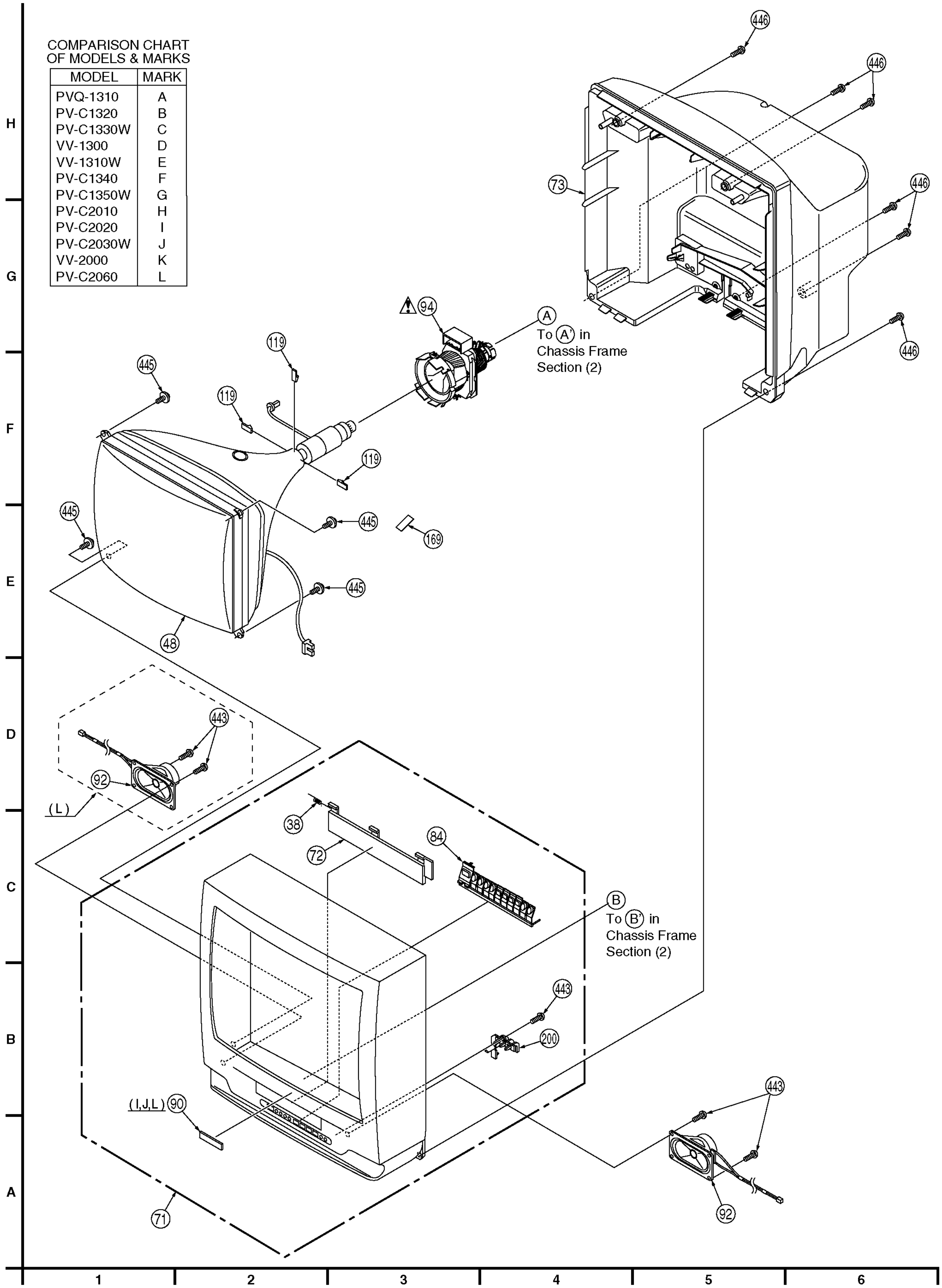
11.5. CHASSIS FRAME SECTION (1) (H, I, J, K, L)

❹ CHASSIS FRAME SECTION (1)
(Model: H, I, J, K, L)

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L



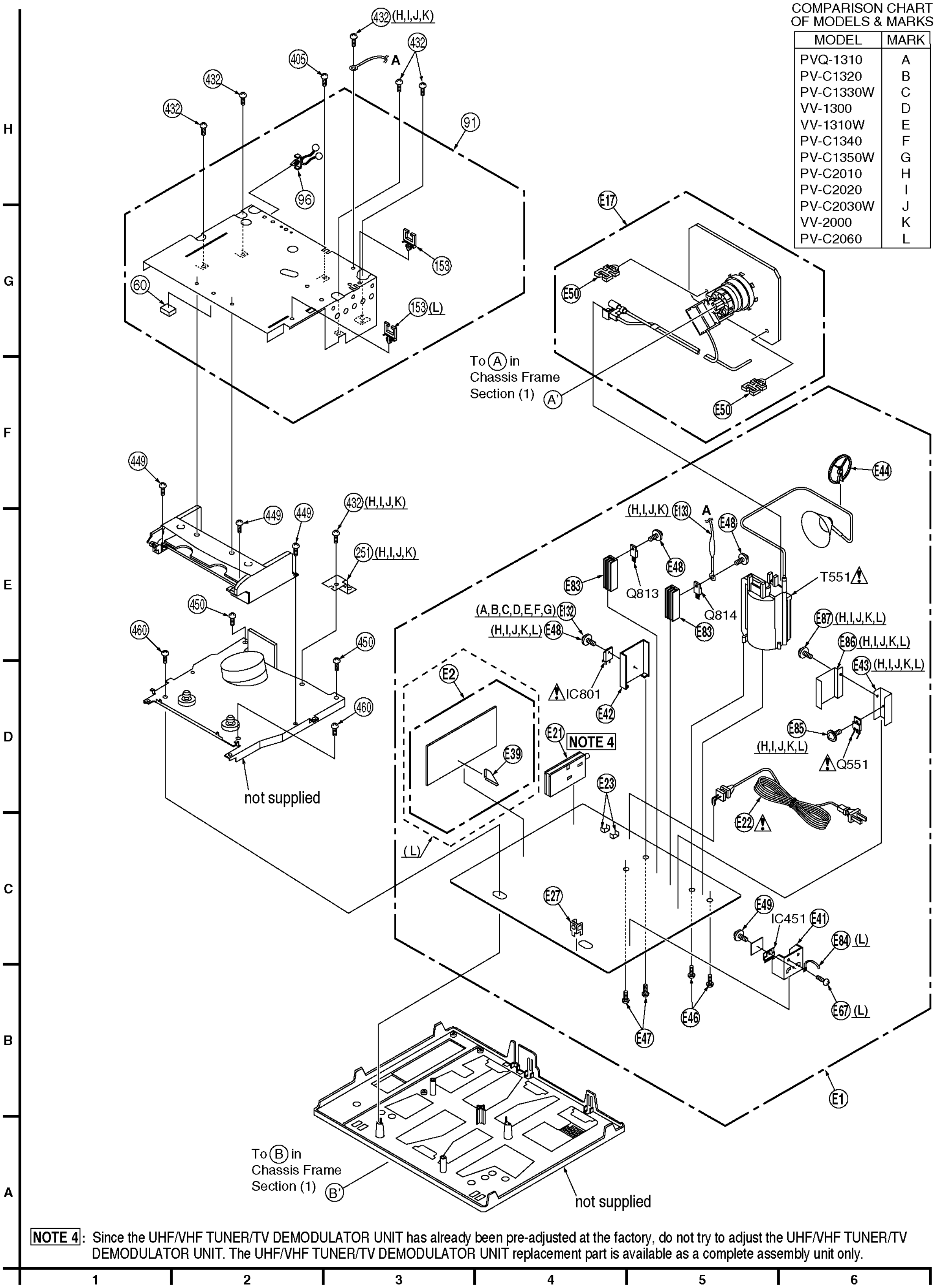
11.6. CHASSIS FRAME SECTION (2)

❺ CHASSIS FRAME SECTION (2)

IMPORTANT SAFETY NOTICE
COMPONENTS IDENTIFIED BY THE SIGN ⚠ HAVE SPECIAL CHARACTERISTICS IMPORTANT FOR SAFETY. WHEN REPLACING ANY OF THESE COMPONENTS, USE ONLY THE SPECIFIED PARTS.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L



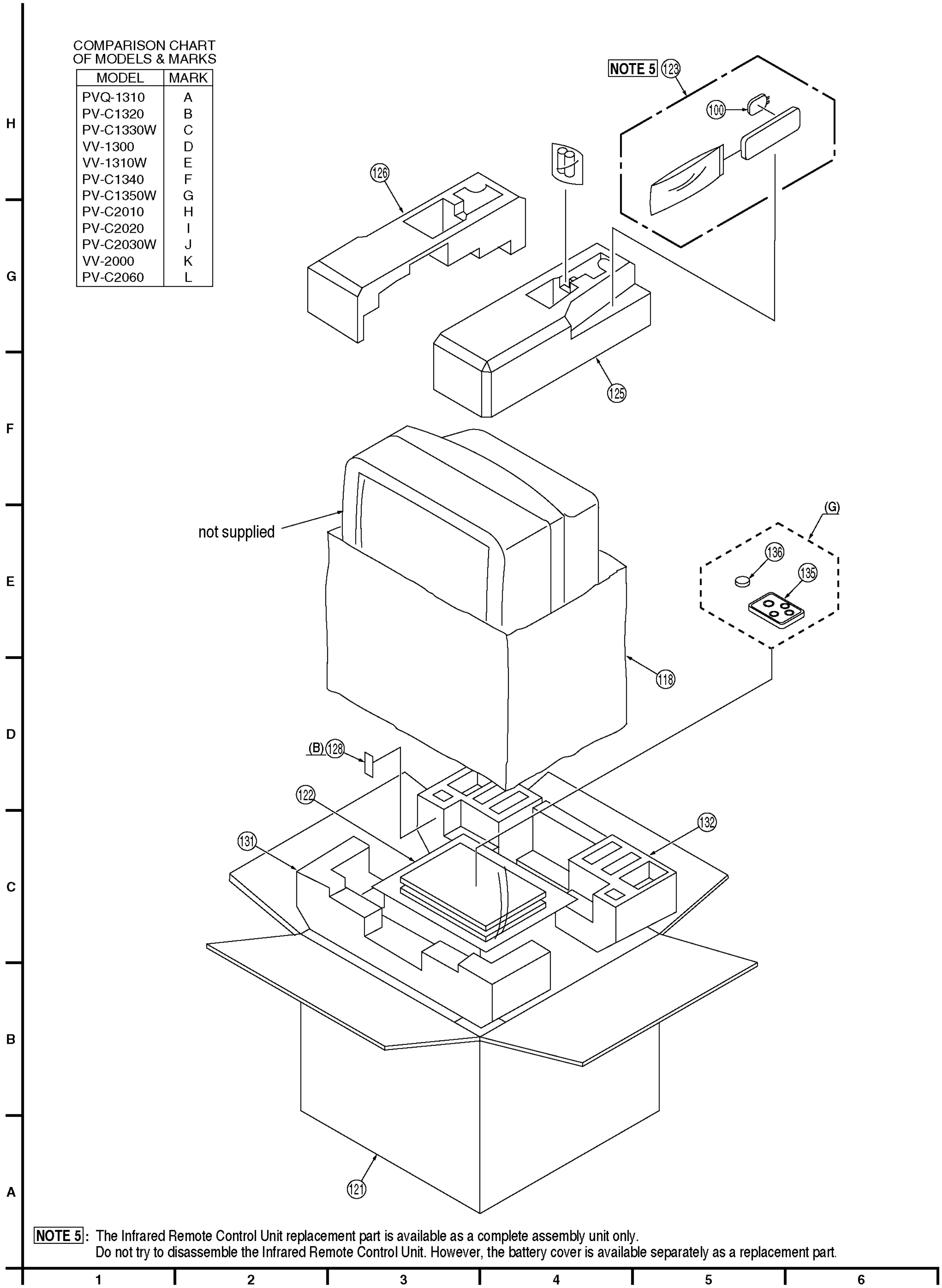
NOTE 4: Since the UHF/VHF TUNER/TV DEMODULATOR UNIT has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

11.7. PACKING PARTS AND ACCESSORIES SECTION (A, B, C, D, E, F, G)

❻ PACKING PARTS AND ACCESSORIES SECTION
(Model: A, B, C, D, E, F, G)

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L



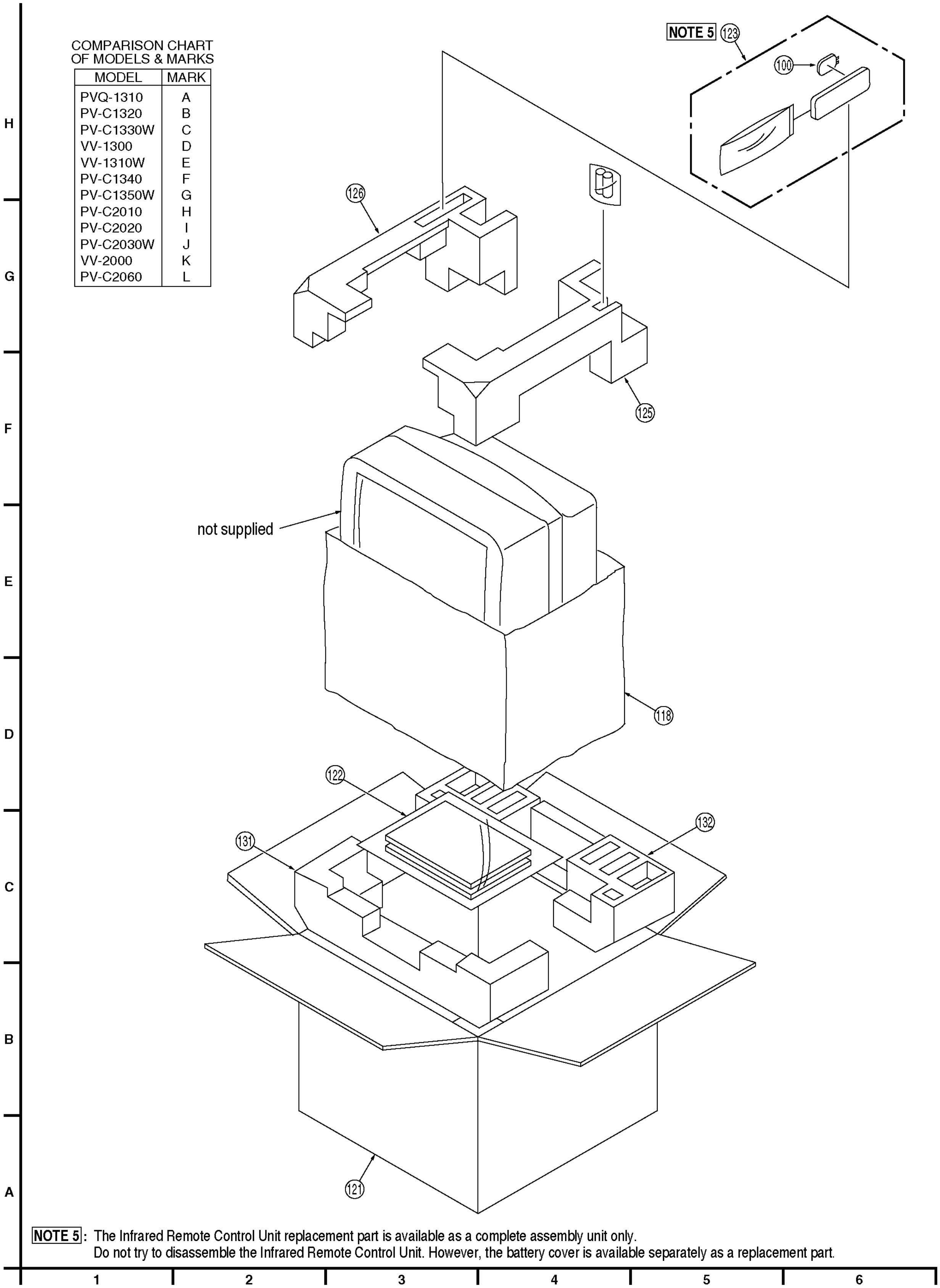
NOTE 5: The Infrared Remote Control Unit replacement part is available as a complete assembly unit only.
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

11.8. PACKING PARTS AND ACCESSORIES SECTION (H, I, J, K, L)

❻ PACKING PARTS AND ACCESSORIES SECTION
(Model: H, I, J, K, L)

COMPARISON CHART
OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L



NOTE 5: The Infrared Remote Control Unit replacement part is available as a complete assembly unit only.
Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

12 REPLACEMENT PARTS LISTS

BEFORE REPLACING PARTS, READ THE FOLLOWING:

12.1. REPLACEMENT NOTES

12.1.1. General Notes

1. Use only original replacement parts:

   To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list.

2. **IMPORTANT SAFETY NOTICE**

   Components identified by the sign ⚠ have special characteristics important for safety. When replacing any of these components, use only the specified parts.

3. SPECIAL NOTE

   All integrated circuits and many other semiconductor devices are electrostatically sensitive and therefore require the special handling techniques described under the "ELECTROSTATICALLY SENSITIVE (ES) DEVICES" section of this service manual.

4. Parts with no Ref. No. in "EXPLODED VIEW" are not supplied. And some Ref. No. will be skipped. Be sure to make your orders of replacement parts according to the parts list.

5. Parts different in shape or size may be used. However, only interchangeable parts will be supplied as service replacement parts.

6. Parts with mark "MKA" in Remarks column are supplied from MKA factory. Others are supplied from MKE.

12.1.2. Mechanical Replacement Notes

1. Section No. of parts shown in Exploded Views are indicated in the Remarks column.

2. When installing the IC2501 (AN3845SC) or Capstan Stator C.B.A., be sure to apply Silicon Grease (VFK1301). Refer to "Capstan Stator C.B.A." of MECHANISM SECTION in DISASSEMBLY/ASSEMBLY PROCEDURES.

3. Main Cam Gear is supplied as a Main Cam Gear Kit (Ref. No. 8) only. Main Cam Gear Kit consists of a Main Cam Gear and a Main Cam Push Nut. However, Main Cam Push Nut is available separately as a replacement part.

4. Since the UHF/VHF TUNER/TV DEMODULATOR UNIT (Ref. No. E21) has already been pre-adjusted at the factory, do not try to adjust the UHF/VHF TUNER/TV DEMODULATOR UNIT. The UHF/VHF TUNER/TV DEMODULATOR UNIT replacement part is available as a complete assembly unit only.

5. The Infrared Remote Control Unit (Ref. No. 123) replacement part is available as a complete assembly unit only. Do not try to disassemble the Infrared Remote Control Unit. However, the battery cover is available separately as a replacement part.

6. Cut Washer (Ref. No. 470) is not reusable.

   If removed, install a new one.

7. Main Cam Push Nut (Ref. No. 414) is not reusable.

   If removed, install a new one.

12.1.3. Electrical Replacement Notes

1. Item numbers with capital letter E (Example: E1, E2,...) in the Ref. No. column are shown in the exploded views.

2. The parts with "■" mark are supplied individually or as a unit. The parts with "▲" mark are supplied individually or as a unit, and are included in "■" parts listed directly above in the parts list.

3. Unless otherwise specified;

   All resistors are in Ω, 1/4 W, ±5 %, carbon, K = 1,000 Ω, M = 1,000 kΩ.

   All capacitors are in µF, P = µµF, ±10 %.

   All coils are in µH, M = 1,000 µH, ±10 %.

4. Abbreviation

   RTL: Retention Time Limited

   This indicates that the retention time is limited for this item. After the discontinuation of this item in production, it will no longer be available.

   NR: Non Repairable Board Ass'y

   MGF CHIP: Metal Glaze Film Chip

   C CHIP: Ceramic Chip

   COMPLX CMP: Complex Component

   W FLMPRF: Wirewound Flameproof

   C.B.A.: Circuit Board Assembly

   P.C.B.: Printed Circuit Board

   E.S.D.: Electrostatically Sensitive Devices

5. SERVICE OF CHIP PARTS

   When servicing chip parts, please use a soldering iron of less than 30 W. Refer to "IC, TRANSISTOR AND CHIP PART INFORMATION" page.

6. The parts with "●" are 0 Ω resistor. When replacing, a wire can be substituted for a 0 Ω resistor.

7. Capstan Stator C.B.A. replacement note:

   The following parts on the Capstan Stator C.B.A. (VEMS0331) are not supplied separately. Please order and replace with the circuit board assembly instead of individual parts.

   (Q2501, Q2502, Q2503, Capstan Coil)

8. IC6001 replacement note:

   The manufacturing part number is UPD784928YGF-107. However, to order tha part, use service part number D784928YG107.

9. EEPROM IC (IC6004),

   TV/VCR Main C.B.A. replacement note:

   When replacing EEPROM IC (IC6004) or TV/VCR Main C.B.A., be sure to write the initial data with remote control.

COMPARISON CHART OF MODELS & MARKS

MODEL	MARK
PVQ-1310	A
PV-C1320	B
PV-C1330W	C
VV-1300	D
VV-1310W	E
PV-C1340	F
PV-C1350W	G
PV-C2010	H
PV-C2020	I
PV-C2030W	J
VV-2000	K
PV-C2060	L

12.2. MECHANICAL REPLACEMENT PARTS LIST

12.2.1. MECHANISM PARTS ON CHASSIS

Ref. No.	Part No.	Part Name & Description	Remarks
1	VBSS0033	FULL ERASE HEAD	1
2	VXKS0890	MOTOR BLOCK UNIT	1
3	LSDB0045	TENSION ARMBOSS	1
4	VXDS0212	CAPSTAN HOLDER UNIT	1
5	LSMD0209	OPENER PIECE	1
8	VVGS0009	MAIN CAM GEAR KIT	2
9	LSDR0002	S REEL TABLE	1
10	LSDR0003	T REEL TABLE	1
11		CYLINDER UNIT	
	VEGS0427	(A,B,C,D,E,H,I,J,K)	1
	VEGS0428	(F,G,L)	1
12	VEHS0583	AUDIO CONTROL/ERASE HEAD UNIT	1
14	LSDG0112	LIFT GEAR	1
16	VXDS0213	LOADING POST BASE-S UNIT	1
17	VXDS0214	LOADING POST BASE-T UNIT	1
18	VXLS1094	PINCH ARM UNIT	1
19	LSDG0110	INTERMEDIATE GEAR A	1
20	VXLS1101	P5 ARM UNIT	1
21	LSML0131	DRIVE RACK ARM	1
22	VXLS1103	TENSION CONTROL ARM UNIT	1
23	LSMX0129	OIL SEAL	1
27	VXLS1100	T BRAKE UNIT	1
29	VXLS1102	TENSION ARM UNIT	1
32		CLEANER ARM UNIT	
	VXLS1104	(A,H)	1
33		CLEANER ROLLER	
	VDPS0269	(A,H)	1
35		GROUNDING WIRE	
	TXF3A02138	(A,B,C,D,E,F,G)	4 MKA
38	LSMB0221	CASSETTE DOOR SPRING	4 MKA
41	VXPS0389	CENTER CLUTCH UNIT	2
42	VMBS1151	CHANGING GEAR SPRING	2
43	LSDG0114	CHANGING GEAR	2
44	VXLS1091	IDLER ARM UNIT	2
45	VXPS0391	CAPSTAN ROTOR UNIT	2
46	LSMA0387	STOPPER ANGLE	2
47	LSMM0002	MAIN ROD	2
48		COLOR PICTURE TUBE	
	A34KQV42X	(A,D,E)	4 MKA
	A34AGT13X	(B,C,F,G)	4 MKA
		COLOR PICTURE TUBE SUB UNIT	
	TXFVB02206	(H,I,J,K,L)	4 MKA
49	VXLS1099	S LOADING ARM UNIT	2
50	VXLS1098	T LOADING ARM UNIT	2
51	LSDG0116	REEL GEAR	2
52	LSDG0111	INTERMEDIATE GEAR B	2
53	LSMA0423	SUPPORT ANGLE	2
54	LSDV0007	CAPSTAN BELT SUQARE,RUBBER 2MM	2
57	LSSA0003	GROUNDING PLATE UNIT	1
60	VMFS0311	CUSHION	5
61	VXYS1347	CASSETTE UP ASS'Y	3
62	LSMA0352	TOP PLATE	3
64	LSMD0174	SIDE PLATE L	3
65	LSMD0173	SIDE PLATE R	3
66	LSMB0218	SUPPORT SPRING	3
67	LSML0096	OPENER LEVER	3
68	VXLS1111	DRIVE RACK UNIT	3
69	VXAS4423	HOLDER UNIT	3
70	VXLS1110	WIPER ARM UNIT	3
71		FRONT CABINET ASS'Y	
	LXQKY01130	(A)	4 MKA
	LXQKY02130	(B)	4 MKA
	LXQKY03130	(C)	4 MKA
	LXQKY06130	(D)	4 MKA
	LXQKY07130	(E)	4 MKA

Ref. No.	Part No.	Part Name & Description	Remarks
	LXQKY04130	(F)	4 MKA
	LXQKY05130	(G)	4 MKA
	LXQKY01200	(H)	4 MKA
	LXQKY02200	(I)	4 MKA
	LXQKY03200	(J)	4 MKA
	LXQKY06200	(K)	4 MKA
	LXQKY04200	(L)	4 MKA
72		CASSETTE DOOR-LID	
	LKK688041A	(A)	4 MKA
	LKK688043A	(B)	4 MKA
	LKK688044A	(C)	4 MKA
	LSKF0300	(D)	4 MKA
	LKK688042A	(E)	4 MKA
	LKK688039A	(F)	4 MKA
	LKK688040A	(G)	4 MKA
	LKK688030A	(H)	4 MKA
	LSKF0293	(I)	4 MKA
	LSKF0294	(J)	4 MKA
	LKK688048A	(K)	4 MKA
	LSKF0292	(L)	4 MKA
73		REAR COVER	
	LKV60601A	(A,B,D,F)	4 MKA
	LKV60603A	(C,E,G)	4 MKA
	LKV60501A	(H,K)	4 MKA
		REAR COVER UNIT	
	LXQKV1209P	(I,L)	4 MKA
	LXQKV1209PW	(J)	4 MKA
84		OPERATION BUTTON	
	LBY61045A	(A,D)	4 MKA
	LBY61044B	(B,F,I,L)	4 MKA
	LBX61072B	(C,G,J)	4 MKA
	LBX61076B	(E)	4 MKA
	LBX61078B	(H)	4 MKA
	LBX61074B	(K)	4 MKA
90		BADGE,ABS RESIN	
	TBM153023	(B,C,F,G)	4 MKA
	TBM153022	(I,J,L)	4 MKA
91		TOP SHIELD PLATE ASS'Y	
	LXQUS04130	(A,B,C,D,E,F,G)	5 MKA
	LXQUS01200	(H,I,J,K)	5 MKA
	LXQUS04200	(L)	5 MKA
92		SPEAKER UNIT	
	LXQAS02209	(A,B,C,D,E,F,G,H,I,J,K)	4 MKA
	LXQAS2209S	(L)	4 MKA
94		DEFLECTION YOKE	
	LLY6312K	(A,D,E)	⚠ 4 MKA
	LLY6311M	(B,C,F,G)	⚠ 4 MKA
	LLY6310F	(H,I,J,K,L)	⚠ 4 MKA
	OR LLY6310S		⚠ 4 MKA
96	LML69002A	CLAMPER	5 MKA
100		BATTERY COVER	
	LSVQ0017	(A,B,D,F,H,K)	6 MKA
	LSVQ0018	(C,E,G)	6 MKA
	VKFS2235	(I,L)	6 MKA
	VKFS2237	(J)	6 MKA
110		DEGAUSSING COIL	
	LLJ69006Z	(A,B,C,D,E,F,G)	⚠ 4 MKA
118		BAG,POLYETHYLENE	
	LPE64003A	(A,B,C,D,E,F,G)	6 MKA
	LPE64004A	(H,I,J,K,L)	6 MKA
119		DY ADJUSTMENT RUBBER	
	LMH65001A	(A,B,C,D,E,F,G)	4 MKA
	LMH65002A	(H,I,J,K,L)	4 MKA
121		PACKING CASE,PAPER	
	LSPG0726	(A)	6 MKA
	LSPG0727	(B)	6 MKA
	LSPG0728	(C)	6 MKA
	LSPG0742	(D)	6 MKA
	LSPG0743	(E)	6 MKA

Ref. No.	Part No.	Part Name & Description	Remarks
	LSPG0729	(F)	6 MKA
	LSPG0730	(G)	6 MKA
	LSPG0731	(H)	6 MKA
	LSPG0732	(I)	6 MKA
	LSPG0733	(J)	6 MKA
	LSPG0744	(K)	6 MKA
	LSPG0734	(L)	6 MKA
122		FAN BAG	
	LSQF0182	(A,H)	6 MKA
	LSQF0183	(B,C,F)	6 MKA
	LSQF0187	(D,E,K)	6 MKA
	LSQF0189A	(G)	6 MKA
	LSQF0184	(I,J)	6 MKA
	LSQF0185	(L)	6 MKA
123		INFRARED REMOTE CONTROL UNIT	
	LSSQ0222	(A,H)	6 MKA
	LSSQ0221	(B,F)	6 MKA
	LSSQ0226	(C,G)	6 MKA
	LSSQ0223	(D,K)	6 MKA
	LSSQ0227	(E)	6 MKA
	LSSQ0193	(I)	6 MKA
	LSSQ0192	(J)	6 MKA
	LSSQ0198	(L)	6 MKA
125		TOP CUSHION RIGHT,STYROFORM	
	LPJ61029A	(A,B,C,D,E,F,G)	6 MKA
		TOP CUSHION RIGHT,STYROFOAM	
	LPJ61028A	(H,I,J,K,L)	6 MKA
126		TOP CUSHION LEFT,STYROFORM	
	LPJ61030A	(A,B,C,D,E,F,G)	6 MKA
	LPJ61027A	(H,I,J,K,L)	6 MKA
128		SECURITY TUG	
	ZLNVDRS1	(B)	6 MKA
131		BOTTOM CUSHION FRONT,STYROFORM	
	LPJ62029A	(A,B,C,D,E,F,G)	6 MKA
		BOTTOM CUSHION FRONT,STYROFOAM	
	LPJ62027A	(H,I,J,K,L)	6 MKA
132		BOTTOM CUSHION REAR,STYROFORM	
	LPJ62030A	(A,B,C,D,E,F,G)	6 MKA
		BOTTOM CUSHION REAR,STYROFOAM	
	LPJ62028A	(H,I,J,K,L)	6 MKA
135		INFRARED REMOTE CONTROL UNIT FOR KITCHEN TIMER	
	VSQS1572	(G)	6
136		BATTERY UNIT	
	VSBW0004	(G)	6
153	TMM77412	CLAMPER	5 MKA
169		PERMALLOY MAGNETICSTRIP	
	TSM10032-2	(H,I,J,K,L)	4 MKA
188		COIL SPRING	
	TES7602	(A,B,C,D,E,F,G)	4 MKA
200		PANEL LIGHT	
	LKK683011A	(A,D,E)	4 MKA
	LKK683010A	(B,C,F,G)	4 MKA
	LKK683013A	(H,K)	4 MKA
	LKK683009A	(I,J,L)	4 MKA
251		GROUNDING PLATE	
	LSMA0424	(H,I,J,K)	5 MKA

12.2.2. SCREW AND WASHERS

Ref. No.	Part No.	Part Name & Description	Remarks
401	VHDS0475	SCREW,STEEL	1
405	VHDS0496	SCREW W/WASHER,STEEL	5
410	VHDS0498	SCREW W/WASHER,STEEL	1
414	VHNS0070	MAIN CAM PUSH NUT,STEEL	2
422	XWGV2D5G	WASHER,NYLON	2
424	XYC26+SF6J	SCREW W/WASHER,STEEL	1
430	XTV26+6FFZJ	TAPPING SCREW,STEEL	1
432	XTV3+8JR	TAPPING SCREW,STEEL	5
443	XTV4+12A	TAPPING SCREW,STEEL	4
445		SCREW W/WASHER,STEEL	
	THE492-4	(A,B,C,D,E,F,G)	4
	LHT60002Y	(H,I,J,K,L)	4 MKA
446	XTV4+16A	TAPPING SCREW,STEEL	4 MKA
449	VHDS0493	TAPPING SCREW,STEEL	5
450	VHDS0309	SCREW,STEEL	5
460	XTN4+12A	TAPPING SCREW,STEEL	5
470	LSMX0135	CUT WASHER,NYLON	1
471	XSN26+5	SCREW,STEEL	1
472	XTN26+5FJ	TAPPING SCREW,STEEL	2
473	XYN26+C6	SCREW,W/WASHER,STEEL	2
474	LSHD0056	TAPPING SCREW,STEEL	1
475	XTV26+5FJ	TAPPING SCREW,STEEL	2
476		TAPPING SCREW,STEEL	
	XTV3+12G	(A,B,C,D,E,F,G)	4

12.2.3. SERVICE FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
	VFMS0003H6	VHS ALIGNMENT TAPE	
	VFKS0081	GREASE	
	VFK0329	POST ADJUSTMENT DRIVER	
	VFK1301	SILICON GREASE	
	VFK27	HEAD CLEANING STICK	
	VFK0330	H-POSITION ADJUSTMENT DRIVER	
	TSM10032-2	PERMALLOY MAGNETIC STRIP	

12.3. ELECTRICAL REPLACEMENT PARTS LIST

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E1	VEPS3082G	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(A)		
E1	VEPS3082C	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(B)		
E1	VEPS3082D	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(C)		
E1	VEPS3082E	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(D)		
E1	VEPS3082F	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(E)		
E1	VEPS3082A	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(F)		
E1	VEPS3082B	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(G)		
E1	VEPS3080D	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(H,K)		

Ref. No.	Part No.	Part Name & Description	Remarks
E1	VEPS3080B	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(I)		
E1	VEPS3080C	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(J)		
E1	VEPS3080A	TV/VCR MAIN C.B.A.	■ E.S.D. RTL MKA
	(L)		
E2	VEPS4032A	AUDIO C.B.A.	■ E.S.D. RTL MKA
	(L)		
E126	VEMS0331	CAPSTAN STATOR C.B.A. NR	■
E6	VEPS5034Z	HEAD AMP C.B.A.	■ RTL MKA
	(A,B,C,D,E,H, I,J,K)		
E6	VEPS5033Z	HEAD AMP C.B.A.	■ RTL MKA
	(F,G,L)		
E17	LRP63004A	CRT C.B.A.	■ RTL MKA
	(A,B,C,D,E,F, G)		
E17	LRP63005A	CRT C.B.A.	■ RTL MKA
	(H,I,J,K,L)		

12.3.1. TV/VCR MAIN C.B.A. (A,B,C,D,E,F,G) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	LA7837	IC, LINEAR VERTICAL OUT	
IC801	STR-F6514	IC, LINEAR SWITCHING CONTROL	⚠ MKA
IC802	0N3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC803	0N3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC2601	AN3808K	IC, LINEAR CYLINDER MOTOR DRIVE	
IC3001	AN3479FBP-A	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3201	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC3301	LC8632165N41	IC, 8BIT MICROCONTROLLER	E.S.D. MKA
IC4501	LA4285	IC, BIPOLAR LINEAR AUDIO AMP	MKA
IC5301	AN5368FB	IC, LINEAR Y/C SIGNAL PROCESS	MKA
IC6001	D784928YG110	IC, 16BIT MICROCONTROLLER	E.S.D. MKA
IC6002	SG-PK01	REEL SENSOR	
IC6003	SG-PK01	REEL SENSOR	
IC6004	AT24C01A10SI	IC, 1K EEPROM MEMORY	E.S.D.
	OR KS24C011IS	IC, 1K EEPROM MEMORY	E.S.D.
	OR M24C01-MN6	IC, 1K EEPROM MEMORY	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA1175		
	OR 2SA1175(TH)		MKA
	OR 2SA733(TQ)		MKA
Q432	2SC3311A(R)		MKA
Q433	2SB1322A(R)		MKA
	OR 2SB1322A(S)		MKA
Q434	2SC3311A(R)		MKA
Q501	2SC2482KT		MKA
Q551	2SD2586LBK		⚠ MKA
Q571	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q581	2SA1321TPE6		MKA
	OR 2SA1767(Q)		MKA
	OR 2SB1221(Q)		MKA
Q801	2SC1684(Q,R, S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R ,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q802	2SC4533LB.KT		⚠ MKA
Q807	2SD1458		
	OR 2SD2259		
Q810	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q812	2SC1684(Q,R, S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R ,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q813	2SD2396K		MKA
Q814	2SD2396K		MKA
Q815	2SC1684(Q,R, S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R ,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		

Ref. No.	Part No.	Part Name & Description	Remarks
	OR 2SC945A(TQA)		
Q817	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q819	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q820	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q821	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q822	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q823	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3002	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3310	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3311	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3314	HN1C01F(GR)	COMPLX CMP SI NPN CHIP	
	OR IMX1	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q3315	DTA124EK	CHIP	
	OR UN2112	CHIP	
Q4001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q4002	2SD601A(R,S)	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q4003	2SD601A(R,S)	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q4101	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q4171	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5301	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5901	2SD1858(R)		MKA
	OR 2SD2259		
Q6002	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q6003	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6004	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q6005	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6006	DTA143EK	CHIP	
	OR UN211L	CHIP	
Q6007	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	ERB12-01		
	OR ERB12-01RKV1		
	OR ERB12-01V		
D503	ERB43-04V		
	OR ES1V		
D504	MA4047-H	ZENER 4.7V	
	OR MA4047-M	ZENER 4.7V	
	OR RD4.7ESAB	ZENER 4.7V	
	OR RD4.7ESAB2	ZENER 4.7V	
	OR 04AZ4.7ZTPA7	ZENER 4.7V	
D505	MA165		
	OR WG713A		
	OR 1SS119		
	OR 1SS133T		
D524	MA165		
	OR WG713A		
	OR 1SS119		
	OR 1SS133T		
D553	ERB43-04V		
	OR ES1V		
D554	MA167		
	OR 4148-TA		MKA
D558	ERB43-04V		
	OR ES1V		
D560	ERB43-04V		
	OR ES1V		
D591	TRPF5B0M050K	THERMISTOR	⚠ MKA
	OR VRPSKF5JM050	THERMISTOR	⚠ MKA
D801	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D802	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D803	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D804	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D805	MA167		
	OR 4148-TA		MKA
D806	MA2062	ZENER 6.2V	⚠ MKA
D807	MA700		
D808	ERB43-04V1		MKA
D809	ERB43-04V1		MKA
D810	ERB81-004V1		
	OR RK14V1		
D811	MA110	CHIP	
	OR MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D812	MA110	CHIP	
	OR MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D814	RU30A014-305		
D815	ERC30-01L3		
	OR RU3YXLFC1		
D816	MA4120-L	ZENER 12V	
D818	MA4033-H	ZENER 3.3V	
D819	MA165		
	OR 1SS119		
	OR 1SS133T		
D822	MA167		
	OR 4148-TA		MKA
D823	S1WBA60B		⚠
D826	ERB43-04V1		MKA
D827	MA4075-M	ZENER 7.5V	

Ref. No.	Part No.	Part Name & Description	Remarks
D829	RZ1200	ZENER 12V	⚠
D831	MA4300-H	ZENER 30V	
	OR MA4300-M	ZENER 30V	
D832	ERB43-04V1		MKA
D834	MA165		
	OR 1SS119		
	OR 1SS133T		
D836	MA4130-L	ZENER 13V	MKA
D837	MA165		
	OR 1SS119		
	OR 1SS133T		
D838	MA110	CHIP	
	OR MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D839	MA4120-L	ZENER 12V	
D840	MA4051N-H	ZENER 5.1V	
	OR MA4051NH	ZENER 5.1V	
D841	EG01		
	OR ERA18-04		
D842	MA188		
	OR 1SS244T-77		
D843	MA111	CHIP	
D844	MA858		
	OR 1SS135T-77		
D845	MA165		
	OR 1SS119		
	OR 1SS133T		
D850	MA4100N	ZENER 10V	
	OR RD10JSAB3	ZENER 10V	
D851	MA111	CHIP	
D852	MA111	CHIP	
D880	MA185		
D881	ERZV10V361CS	SUEGE ABSORBER 360	⚠ MKA
D882	ERZV10V361CS	SUEGE ABSORBER 360	⚠ MKA
D4171	MA165		
	OR 1SS119		
	OR 1SS133T		
D4591	RD9.1EW	ZENER 9.1V	
D5501	MA4062-L	ZENER 6.2V	⚠
D5602	MA165		
	OR 1SS119		
	OR 1SS133T		
D5603	MA165		
	OR 1SS119		
	OR 1SS133T		
D6001	VEKS5708	SENSOR LED UNIT	
D6002	MA165		
	OR 1SS119		
	OR 1SS133T		
D6003	MA165		
	OR 1SS119		
	OR 1SS133T		
D6201	MA165		
	OR 1SS119		
	OR 1SS133T		
D6202	MA165		
	OR 1SS119		
	OR 1SS133T		
D6301	SLP913C81HAB	LED RED	
D6302	SLP313C81HAB	LED GREEN	
D6303	SLP413C81HAB	LED ORANGE	MKA

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERDS2TJ821	820	
R402	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R405	ERDS1TJ102	1/2W 1K	
R409	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R410	ERDS2TJ152	1.5K	
R411	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	

Ref. No.	Part No.	Part Name & Description	Remarks
R413	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R414	ERDS1FJ2R2	1/2W 2.2	⚠
R422	ERD25FJ101P	100	⚠
R427	ERQ14ZJ1R5P	FUSE 1.5	⚠ MKA
R431	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R432	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R433	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R434	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R435	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R468	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R469	ERDS2TJ222	2.2K	
R470	ERDS2TJ152	1.5K	
R471	ERDS2TJ391	390	
R472	ERDS2TJ471	470	
R473	ERDS2TJ101	100	
R474	ERDS2TJ222	2.2K	
R475	ERDS2TJ222	2.2K	
R476	ERDS2TJ561	560	
R477	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R478	ERDS2TJ332	3.3K	
R481	ERDS2TJ182	1.8K	
R482	ERDS2TJ150	15	
R501	ERDS2TJ681	680	
R502	ERDS2TJ821	820	
R503	ER0S2THF1132	METAL FILM +-1% 11.3K	⚠ MKA
	OR ER0S2TKF1132	METAL FILM +-1% 11.3K	⚠ MKA
	OR VRESR4TF1132	METAL FILM +-1% 11.3K	⚠ MKA
R509	ERDS2TJ101	100	
R511	ERG2ANJ222H	METAL OXIDE 2W 2.2K	MKA
R512	ERDS2TJ222	2.2K	
R513	ERDS2TJ472	4.7K	
R516	LAR05202J09	W FLMPRF 5W 2K	MKA
R519	ERDS2TJ822	8.2K	
R529	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R535	ERDS2TJ472	4.7K	
R536	ERDS2TJ562	5.6K	
R546	ERDS2TJ681	680	
R552	ERDS2TJ273	27K	
R553	ERDS2TJ102	1K	
R554	ERDS2TJ103	10K	
R555	ERDS2TJ124	120K	
	(A,D,E)		
	ERDS2TJ154	150K	
	(B,C,F,G)		
R556	ERDS2TJ124	120K	
	(A,D,E)		
	ERDS2TJ823	82K	
	(B,C,F,G)		
R558	ERG2ANJ471H	METAL OXIDE 2W 470	
R561	ERQ1CJP3R3S	FUSE 1W 3.3	⚠ MKA
R565	ERDS1FJ1R0P	1/2W 1	⚠
R571	ERDS2TJ101	100	
R572	ERDS2TJ331	330	
R573	ERDS2TJ221	220	
R574	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R581	ERDS1FJ2R2	1/2W 2.2	⚠
R582	ERDS1FJ2R7	1/2W 2.7	⚠
R584	ERDS2TJ562	5.6K	
R585	ERDS2TJ473	47K	
R586	ERDS2TJ393	39K	
R801	ERF5AKR47	W FLMPRF +-10% 5W 0.47	⚠ MKA
	OR LAR05R47K02	W FLMPRF +-10% 5W 0.47	⚠ MKA
R802	ERD25FJ100P	10	
R803	ERDS2TJ272	2.7K	
R804	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R805	ERQ12AJ561P	FUSE 1/2W 560	MKA
R806	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R807	ERDS2TJ221	220	
R808	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	

Ref. No.	Part No.	Part Name & Description	Remarks
R809	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R810	ERDS2TJ103	10K	
R811	ERG2SJ273H	METAL OXIDE 2W 27K	MKA
R817	ERDS2TJ221	220	
R818	VRESC2TK825C	SOLID +-10% 1/2W 8.2M	
	OR VRESC2TK825T	SOLID +-10% 1/2W 8.2M	
R819	ERDS2TJ221	220	
R820	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R823	ERDS2TJ102	1K	
R827	ERDS2TJ103	10K	
R832	ERJ6GEYJ100V	MGF CHIP 1/10W 10	
R833	ERJ6GEYJ680V	MGF CHIP 1/10W 68	
R834	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R835	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R836	ERDS2TJ124	120K	
R837	ERDS2TJ124	120K	
R838	ER0S2TKF3901	METAL FILM +-1% 3.9K	
R839	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R842	ER0S2TKF1602	METAL FILM +-1% 16K	
R846	ERDS2TJ222	2.2K	
R847	ER0S2TKF1602	METAL FILM +-1% 16K	
R848	ER0S2TKF1432	METAL FILM +-1% 14.31	MKA
R849	ER0S2TKF3901	METAL FILM +-1% 3.9K	
R850	EVMEYSA00B53	VARIABLE 5K	MKA
R852	VRESE2TJ154	1/2W 150K	
R854	ERDS2TJ182	1.8K	
R855	ERDS2TJ100	10	
R856	ERX2SZJR10P	METAL FILM 2W 0.1	MKA
R857	ERDS2TJ152	1.5K	
R858	ERDS2TJ332	3.3K	
R860	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R861	ERG2SJ333H	METAL OXIDE 2W 33K	
R862	ERDS2TJ222	2.2K	
R863	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R864	ER0S2TKF1602	METAL FILM +-1% 16K	
R865	ERDS2TJ222	2.2K	
R868	ERDS2TJ472	4.7K	
R880	ER0S2TKF3901	METAL FILM +-1% 3.9K	
R882	ERDS2TJ682	6.8K	
R883	ERD25FJ100P	10	
R885	ERDS2TJ104	100K	
R890	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R891	ERDS2TJ223	22K	
R892	ERDS2TJ102	1K	
R897	ERDS2TJ153	15K	
R898	ERDS2TJ153	15K	
R899	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R1212	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1214	ERDS2TJ153	15K	
R1216	ERDS2TJ472	4.7K	
R1218	ERDS2TJ152	1.5K	
R1219	ERDS2TJ153	15K	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERDS2TJ561	560	
R3001	ERDS2TJ101	100	
R3006	ERDS2TJ101	100	
R3010	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3016	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3017	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3024	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3025	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3026	ERJ6GEYJ474V	MGFCHIP 1/10W 470K	
R3028	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3029	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R3032	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R3037	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R3038	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3043	ERJ6GEYG392V	MGF CHIP +-2% 1/10W 3.9K	
	(A,B,C,D,E)		
R3044	ERJ6GEYG682V	MGF CHIP +-2% 1/10W 6.8K	
	(A,B,C,D,E)		
R3045	ERJ6GEYG222V	MGF CHIP +-2% 1/10W 2.2K	
	(A,B,C,D,E)		
R3046	ERJ6GEYG682V	MGF CHIP +-2% 1/10W 6.8K	
	(A,B,C,D,E)		
R3077	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3081	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3082	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3083	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R3084	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3085	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R3091	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3302	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R3303	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3304	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3305	ERJ6GEYJ222V	MGF CHIP 1/10W2.2K	
R3306	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3307	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3311	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R3312	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3313	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3315	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3321	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3325	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3326	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R3329	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3330	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3336	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3345	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3361	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3362	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R3363	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3366	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3375	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3377	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3378	ERJ6GEYJ221V	MGFCHIP 1/10W 220	
R3379	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3380	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3381	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3390	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4018	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(A,D,E)		
	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	
	(B,C,F,G)		
R4021	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4051	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4052	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4101	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4102	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4171	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	

Ref. No.	Part No.	Part Name & Description	Remarks
R4173	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4502	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4504	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4506	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4509	ERDS2TJ100	10	
R4521	ERQ1ABJP8R2S	FUSE 1W 8.2	
R4523	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4524	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4591	ERDS2TJ681	680	
R4592	ERDS2TJ681	680	
R4593	ERDS2TJ681	680	
R4594	ERDS2TJ681	680	
R4701	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5301	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5304	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5305	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5306	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5308	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5309	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R5311	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5312	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5313	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5314	ERDS2TJ272	2.7K	
R5315	ERDS2TJ272	2.7K	
R5316	ERDS2TJ272	2.7K	
R5324	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5325	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5401	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5402	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5403	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5405	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5406	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5407	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R5501	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5502	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5503	ERDS2TJ471	470	
R5504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5505	ERJ6ENF3241V	MGF CHIP +-1% 1/10W 3.24K	⚠
R5506	ERDS2TJ473	47K	
R5508	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5511	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5512	ERDS2TJ151	150	
R5513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5515	ERDS2TJ332	3.3K	
R5601	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R5604	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5611	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5612	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5614	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5902	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5932	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5933	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R6001	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6002	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6005	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R6006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6007	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6008	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6011	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6013	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6024	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6026	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6027	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6028	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6029	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6051	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(B,C,F,G)		
R6054	ERDS2TJ221	220	
R6055	ERDS2TJ221	220	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6057	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6058	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6059	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6060	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6061	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6062	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(F,G)		
R6063	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6064	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(B,C,F,G)		
R6065	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(A,D,E)		
R6066	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6072	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(F,G)		
R6078	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6082	ERDS2TJ222	2.2K	
R6098	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6099	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6100	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6101	ERDS2TJ121	120	
R6102	ERDS2TJ151	150	
R6103	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6104	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6105	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6106	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6107	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6108	ERDS2TJ681	680	
R6109	ERDS2TJ122	1.2K	
R6110	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6111	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6113	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6114	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6120	ERDS2TJ560	56	
R6121	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6122	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6123	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6124	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6125	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6126	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6127	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6128	ERDS2TJ221	220	
R6129	ERDS2TJ221	220	
R6130	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6150	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6151	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6152	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6159	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6160	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6161	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(A,B,C,D,E)		
R6162	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6163	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6164	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6165	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6173	ERJ6GEYG332V	MGF CHIP +-2% 1/10W 3.3K	
R6174	ERDS2TG223	+-2% 22K	
R6175	ERDS2TG273	+-2% 27K	
R6176	ERDS2TJ103	10K	
R6177	ERDS2TJ103	10K	
R6178	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6179	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R6181	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
	(B,C,F,G)		
R6182	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6183	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6184	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6202	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	

Ref. No.	Part No.	Part Name & Description	Remarks
R6205	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6206	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6209	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6210	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6212	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6213	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R6214	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R6216	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6217	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6223	ERDS2T0	0	●
R6301	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6303	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6304	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6305	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6307	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6308	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6314	ERDS2TJ560	56	
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7005	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R7006	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7007	ERDS2TJ102	1K	
	(A,D,E)		

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HGE2R2	ELECTROLYTIC 50V 2.2	
C402	ECA1CM471B	ELECTROLITIC 16V 470	
C408	ECA1HGE010KB	ELECTROLYTIC 50V 1	MKA
C409	ECA1VM101B	ELECTROLYTIC 35V 100	
C413	ECQB1H104KF	POLYESTER 50V 0.1	
C414	ECA1EM102E	ELECTROLYTIC 25V 1000	MKA
C418	ECA1VM221B	ELECTROLYTIC 35V 220	
C458	ECQB1H103KM	POLYESTER 50V 0.01	MKA
C510	ECKW2H681KB5	CERAMIC 500V 680P	
C513	ECA1HM100B	ELECTROLYTIC 50V 10	
C524	ECKC3D471KBP	CERAMIC 2KV 470P	⚠
	(A,D,E)		
	ECKC3D391KBP	CERAMIC 2KV 390P	⚠ MKA
	(B,C,F,G)		
C552	ECA1EM471B	ELECTROLYTIC 25V 470	
C553	ECKW2H471KB5	CERAMIC 500V 470P	MKA
C554	ECWH12H622JS	POLYESTER +-5% 1.2KV 6200P	⚠ MKA
	OR ECWH16622JVB	POLYESTER +-5% 1.2KV 6200P	⚠ MKA
	OR LSCFN12622JB	POLYESTER +-5% 1.2KV 6200P	⚠ MKA
C556	ECWF2334JBB	POLYESTER +-5% 500V 0.33	⚠ MKA
	OR ECWF2334JSB	POLYESTER +-5% 500V 0.33	⚠ MKA
	OR LSCFM2334JM	POLYESTER +-5% 500V 0.33	⚠ MKA
C558	ECA1VM101B	ELECTROLYTIC 35V 100	
C560	ECA2EM100E	ELECTROLYTIC 250V 10	⚠ MKA
C561	ECA2CM2R2B	ELECTROLYTIC 160V 2.2	MKA
C563	ECEA160V33	ELECTROLYTIC 160V 33	MKA
C571	ECA1HM3R3B	ELECTROLYTIC 50V 3.3	MKA
C801	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C802	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C803	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C804	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C805	VSQ1003-F	ARRESTER	⚠ MKA
C806	ECKATS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR ECKETS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR VCKSEJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSELD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHJD221KW	CERAMIC 125V 220P	⚠ MKA

Ref. No.	Part No.	Part Name & Description	Remarks
	OR VCKSHLD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSTJG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSTLG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSUJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSULD221KW	CERAMIC 125V 220P	⚠ MKA
C807	ECEA1PEE331	ELECTROLYTIC 18V 330	
C808	ECQU2A823MLA	POLYESTER +-20% 250V 0.082	⚠ MKA
	OR LSCFQ2A823MC	POLYESTER +-20% 250V 0.082	⚠ MKA
C809	ECKATS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR ECKETS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR VCKSEJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSELD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHLD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSTJG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSTLG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSUJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSULD221KW	CERAMIC 125V 220P	⚠ MKA
C811	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C812	ECQB1H104P9	POLYESTER +100%-0% 50V 0.1	
C813	EUEC2DP331BB	ELECTROLYTIC 200V 330	⚠ MKA
	OR VCESAS2D331E	ELECTROLYTIC 200V 330	⚠ MKA
	OR VCESAY2D331E	ELECTROLYTIC 200V 330	⚠ MKA
C814	ECEA1PEE331	ELECTROLYTIC 18V 330	
C817	VCKSFKK102MX	CERAMIC +-20% 125V 1000P	⚠
	OR VCKSFMK102MX	CERAMIC +-20% 125V 1000P	⚠ MKA
	OR VCKSFVK102MX	CERAMIC +-20% 125V 1000P	⚠ MKA
C818	VCYSHRE104ZF	CERAMIC +80%-20% 25V 0.1	
C819	ECA1EM101B	ELECTROLYTIC 25V 100	
C820	ECQB1H223JF	POLYESTER +-5% 50V 0.022	
C821	ECQB1H272KF	POLYESTER 50V 2700P	MKA
C822	VCKSFKK332MY	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSFMK332MY	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSFVK332MY	CERAMIC +-20% 125V 3300P	⚠ MKA
C824	ECKC3D102KB	CERAMIC 2KV 1000P	
C825	ECKW2H102KB5	CERAMIC 500V 1000P	
C827	ECKW2H221KB5	CERAMIC 500V 220P	
C830	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C832	VCESAU2D101	ELECTROLYTIC 200V 100	⚠ MKA
C834	ECUV1H562KBN	C CHIP 50V 5600P	
C835	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C836	ECQB1H683JF	POLYESTER +-5% 50V 0.068	MKA
C837	ECEA2DU820YB	ELECTROLYTIC 200V 82	⚠
	OR VCESAN2D820B	ELECTROLYTIC 200V 82	⚠
	OR VCESR2D820XB	ELECTROLYTIC 200V 82	⚠
C840	ECEA1HKG010	ELECTROLYTIC 50V 1	
C841	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C843	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C845	ECA1CM101B	ELECTROLYTIC 16V 100	
C846	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7	
C847	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C848	ECQB1H471JF	POLYESTER +-5% 50V 470P	MKA
C849	VCKSWMM332KR	CERAMIC 2KV 3300P	MKA
C850	ECKATS103MF	CERAMIC +-20% 125V 0.01	⚠

Ref. No.	Part No.	Part Name & Description	Remarks
	OR ECKETS103MF	CERAMIC +-20% 125V 0.01	⚠
	OR VCKSEKD103PZ	CERAMIC +80%-20% 125V 0.01	⚠
	OR VCKSEMD103PZ	CERAMIC +80%-20% 125V 0.01	⚠
	OR VCKST3G103MY	CERAMIC +-20% 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC +-20% 125V 0.01	⚠ MKA
C851	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C880	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C885	ECA1EM470B	ELECTROLYTIC 25V 47	
C1202	ECA1EM101B	ELECTROLYTIC 25V 100	
C1204	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C1205	ECA1EM101B	ELECTROLYTIC 25V 100	
C1206	ECA1CM471B	ELECTROLITIC 16V 470	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E103KBN	C CHIP 25V 0.01	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3001	ECUV1H103KBN	C CHIP 50V 0.01	
C3003	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3004	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3006	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3007	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3008	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3009	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3010	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3011	ECUV1H470JCN	C CHIP +-5% 50V 47P	
C3013	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3015	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3016	ECEA1CKS100	ELECTROLYTIC 16V 10	
C3019	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3020	ECEA1CKA220	ELECTROLYTIC 16V 22	
C3021	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3022	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3023	ECUV1H680JCN	C CHIP +-5% 50V 68P	
C3024	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3025	ECUV1E104KBN	C CHIP 25V 0.1	
C3026	ECUV1H822KBN	C CHIP 50V 8200P	
C3027	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3030	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3031	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3032	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3034	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3035	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C3036	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3038	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3041	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3043	ECUV1H392KBN	C CHIP 50V 3900P	
C3044	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3045	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3046	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3047	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3048	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3050	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3053	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3054	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
	(F,G)		
C3055	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3056	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3057	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3058	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3060	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3081	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

Ref. No.	Part No.	Part Name & Description	Remarks
C3082	ECUV1H332KBN	C CHIP 50V 3300P	
C3083	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3231	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3232	ECUV1H102KBN	C CHIP 50V 1000P	
C3234	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3235	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3236	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3237	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3301	ECUV1H220JCN	C CHIP +-5% 50V 22P	
C3302	ECUV1H180JCN	C CHIP +-5% 50V 18P	
C3303	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3304	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3309	ECEA1HKS010	ELECTROLYTIC 50V 1	
C3310	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3311	ECUV1H333KBN	C CHIP 50V 0.033	
C3312	ECUV1H102KBN	C CHIP 50V 1000P	
C3313	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3314	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3326	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3367	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4001	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4002	ECEA1HKS010	ELECTROLYTIC 50V 1	
C4003	ECUV1H272KBN	C CHIP 50V 2700P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKS220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E333KBN	C CHIP 25V 0.033	
C4011	ECUV1H103KBN	C CHIP 50V 0.01	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4018	ECUV1H103KBN	C CHIP 50V 0.01	
C4020	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4051	ECUV1E333KBN	C CHIP 25V 0.033	
C4102	ECQB1562JF	POLYESTER +-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4105	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4171	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4502	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4504	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4506	ECEA1CKA470	ELECTROLYTIC 16V 47	
C4508	ECA1CM221B	ELECTROLYTIC 16V 220	
C4509	ECUV1H473KBN	C CHIP 50V 0.047	
C4521	ECA1EM102B	ELECTROLYTIC 25V 1000	MKA
C4525	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C4526	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
C5301	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5302	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C5303	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C5305	ECEA1HKAR33	ELECTROLYTIC 50V 0.33	
C5306	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5307	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5308	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5401	VCUSTBC224KB	C CHIP +-10% 16V 0.22	
C5402	ECUV1H222KBN	C CHIP 50V 2200P	
C5403	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C5501	ECUV1E183KBN	C CHIP 25V 0.018	
C5502	ECUV1H681KBN	C CHIP 50V 680P	
C5505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5506	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5507	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5508	ECUV1H221JSN	C CHIP +-5% 50V 220P	MKA
C5510	ECEA1HKA010	ELECTROLYTIC 50V 1	
C5511	ECUV1E333KBN	C CHIP 25V 0.033	
C5516	ECUV1E333KBN	C CHIP 25V 0.033	
C5601	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5602	ECUV1E104KBN	C CHIP 25V 0.1	
C5603	ECUV1H150JCN	C CHIP +-5% 50V 15P	

Ref. No.	Part No.	Part Name & Description	Remarks
C5604	ECEA1HKA010	ELECTROLYTIC 50V 1	
C5605	ECUV1E153KBN	C CHIP 25V 0.015	
C5902	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5903	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5904	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5905	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C5906	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5932	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6001	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C6004	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6005	ECUV1H103KBN	C CHIP 50V 0.01	
C6006	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6007	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6009	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6011	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6012	ECUV1H180JCN	C CHIP +-5% 50V 18P	
C6013	ECUV1H150GCN	C CHIP +-2% 50V 15P	
C6014	ECUV1H020CCN	C CHIP +-0.25P 50V 2P	
C6015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6016	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6017	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6018	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6019	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6022	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6029	ECUV1H102KBN	C CHIP 50V 1000P	
C6030	ECUV1H102KBN	C CHIP 50V 1000P	
C6035	ECEA1CKS100	ELECTROLYTIC 16V 10	
C6061	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6100	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C6201	ECUV1H102KBN	C CHIP 50V 1000P	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6206	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6207	ECUV1H680JCN	C CHIP +-5% 50V 68P	
C6208	ECUV1E104KBN	C CHIP 25V 0.1	
C6209	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6211	ECEA0JKS470	ELECTROLYTIC 6.3V 47	
C6212	ECUV1H100CCN	C CHIP +-0.25P 50V 10P	
C6213	ECUV1H272KBN	C CHIP 50V 2700P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6218	ECEA0JKS101	ELECTROLYTIC 6.3V 100	
C6219	ECEA1EKS4R7	ELECTROLYTIC 25V 4.7	
C6220	ECUV1H103KBN	C CHIP 50V 0.01	
C6223	ECUV1E104KBN	C CHIP 25V 0.1	
C6235	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C6301	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6302	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C7002	ECUV1H102KBN	C CHIP 50V 1000P	
C7006	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C7007	ECUV1H102KBN	C CHIP 50V 1000P	
C7008	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7009	ECUV1H222KBN	C CHIP 50V 2200P	
C7010	ECEA1CKA100	ELECTROLYTIC 16V 10	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL4051	VLFS0014		

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L552	TSC925V		
L802	VLQSW07D220M	+-20% 22	
L803	ELF18D650C	LINE FILTER 1.7A 8.2M	⚠
	OR ELF21V018A	LINE FILTER 1.7A 8.2M	⚠ MKA
	OR LLN63021A	LINE FILTER 1.7A 8.2M	⚠ MKA
	OR LLN63055A	LINE FILTER 1.7A 8.2M	⚠ MKA
L804	VLPS0087		MKA
L806	VLPS0087		MKA
L807	VLPS0087		MKA
L808	VLPS0088		MKA
L809	VLPS0083		
L810	VLPS0083		
L811	VLPS0005A	BEAD INDUCTOR	
L812	VLQSW07D220M	+-20% 22	
L813	VLQSW07D220M	+-20% 22	
L814	VLPS0087		MKA
L815	VLPS0087		MKA
L3001	ELEXT390KE04	39	MKA
L3002	ELESN101KA	100	
L3004	ELEXT270KE04	27	MKA
L3005	VLQSH02R330K	33	
L3010	ELESN470KA	47	
L3231	ELESN221KA	220	
L3303	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(A,D,E)		
	VLPS0111	CHIP BEAD INDUCTOR	MKA
	(B,C,F,G)		
L3304	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(A,D,E)		
	VLPS0111	CHIP BEAD INDUCTOR	MKA
	(B,C,F,G)		
L3305	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(A,D,E)		
	VLPS0111	CHIP BEAD INDUCTOR	MKA
	(B,C,F,G)		
L4001	VLQSU06R153K	15M	
L4002	ELESN101KA	100	
L4004	VLQSH02R390K	39	
L4101	ELESN471KA	470	
L5901	ELESN101KA	100	
L6002	ELEXT101KE04	100	
L7002	ELESN100KA	10	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	PartName & Description	Remarks
X3301	VSXS0238		MKA
X5501	CSB503F38		
X5601	VSXS0208-A		MKA
X6001	VSXS0784		MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P552	VJSS0898	4P WIRE TRAP	MKA
P3001	LSJP0085	CONNECTOR 10P	
	(A,B,C,D,E)		
	VJPS0882	CONNECTOR 12P	
	(F,G)		
P4001	VJSS0888	FE CONNECTOR 2P	
P4591	VJPS0268	CONNECTOR 2P	
P5301	VJSS0901	CONNECTOR 5P	MKA
P6001	VJPS0275	CONNECTOR 5P	
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0008	MODE SWITCH	MKA
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6303	EVQ21405R	PUSH SWITCH	
SW6304	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6307	EVQ21405R	PUSH SWITCH	
SW6308	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	
SW6312	EVQ21405R	PUSH SWITCH	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	VSFS0003A40	FUSE 125V 4A	⚠ MKA
	OR XBA1C40NU100	FUSE 125V 4A	⚠
PR802	UNH000600A	IC PROTECTOR 1.5A	⚠
PR804	UNH000600A	IC PROTECTOR 1.5A	⚠
PR1201	UN11010	IC PROTECTOR 1.0A	⚠ MKA

RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL801	LFN20803A	RELAY	⚠ MKA
	OR LSSY0003	RELAY	⚠ MKA
RL802	LSSY0004	RELAY	MKA
	OR TSEH0005	RELAY	

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH09K6AZ		MKA
T551	KFT2AA278F	FLYBACK TRANSFORMER	⚠ MKA
	OR ZTFM82001A	FLYBACK TRANSFORMER	⚠ MKA
T801	ETS35AA4E5NC		⚠ MKA
	OR LSTP0095		⚠ MKA
T802	ETS19AB175AG		⚠ MKA
T4101	VLTS0367		MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	LJP28016A	EARPHONE JACK SOCKET	MKA
JK4701	LJP68005A	FRONT AUDIO/VIDEO JACK SOCKET	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E21	ENG36701G	UHF/VHF TUNER	MKA
	(B,C,F,G)		
E21	ENG36702G	UHF/VHF TUNER	MKA
	(A,D,E)		
E22	LFX6106A	AC CORD W/PLUG,125V	⚠ MKA
	OR LSJA0256	AC CORD W/PLUG,125V	⚠ MKA
	(A,B,D,F)		
E22	LFX6106B	AC CORD W/PLUG,125V	⚠ MKA
	OR LSJA0257	AC CORD W/PLUG,125V	⚠ MKA
	(C,E,G)		
E23	EYF52BC	FUSE HOLDER	
E27	TSOP1837UH1	INFRARED RECEIVER UNIT	MKA
E41	TUC76677-1	HEAT SINK	
E42	LUS23004A	HEAT SINK	MKA
E44	LML69001A	ANODE LEAD CLAMPER	MKA
E46	XTV3+10G	TAPPING SCREW,STEEL	
E47	XTW3+10J	TAPPING SCREW,STEEL	
E48	XYN3+F10S	SCREW W/WASHER,STEEL	
E49	XYN3+F6S	SCREW W/WASHER,STEEL	
E83	LUS23003A	HEAT SINK	MKA
E132	XYN3+F12S	SCREW W/SASHER,STEEL	

12.3.2. TV/VCR MAIN C.B.A. (H,I,J,K,L) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC451	LA7837	IC, LINEAR VERTICAL OUT	
IC801	STR-F6515	IC, LINEAR SWITCHING CONTROL	⚠ MKA
IC802	0N3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC803	0N3131-S.KT	IC, LINEAR ERROR V. DET	⚠
IC2601	AN3808K	IC, LINEAR CYLINDER MOTOR DRIVE	
IC3001	AN3479FBP-A	IC, LINEAR VIDEO/AUDIO PROCESS	
IC3201	MN3885S	IC, CCD 1H DELAY	E.S.D.
IC3301	LC8632165N41	IC, 8BIT MICROCONTROLLER	E.S.D. MKA
IC4501	LA4285	IC, BIPOLAR LINEAR AUDIO AMP	MKA
IC4511	LA4285	IC, BIPOLAR LINEAR AUDIO AMP	MKA
	(L)		
IC5301	AN5368FB	IC, LINEAR Y/C SIGNAL PROCESS	MKA
IC6001	D784928YG110	IC, 16BIT MICROCONTROLLER	E.S.D. MKA
IC6002	SG-PK01	REEL SENSOR	
IC6003	SG-PK01	REEL SENSOR	
IC6004	AT24C01A10SI	IC, 1K EEPROM MEMORY	E.S.D.
	OR KS24C011IS	IC, 1K EEPROM MEMORY	E.S.D.
	OR M24C01-MN6	IC, 1K EEPROM MEMORY	E.S.D.

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q431	2SA1175		
	OR 2SA1175(TH)		MKA
	OR 2SA733(TQ)		MKA
Q501	2SC2482KT		MKA
Q551	2SD2578(RG)		⚠ MKA
Q571	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q581	2SA1321TPE6		MKA
	OR 2SA1767(Q)		MKA
	OR 2SB1221(Q)		MKA
Q801	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q802	2SC4533LB.KT		⚠ MKA
Q807	2SD1458		
	OR 2SD2259		
Q810	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q812	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q813	2SD2396K		MKA
Q814	2SD2396K		MKA

Ref. No.	Part No.	Part Name & Description	Remarks
Q815	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q817	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q819	2SA1175(TE)		MKA
	OR 2SA1175(TF)		MKA
	OR 2SA1175(TH)		MKA
	OR 2SA1175(TJ)		MKA
	OR 2SA1175(TK)		MKA
	OR 2SA1309A(Q,R,S)		MKA
	OR 2SA564A(Q,R,S)		
	OR 2SA733(TK)		MKA
	OR 2SA733(TP)		MKA
	OR 2SA733(TQ)		MKA
Q820	2SA1175(TE)		MKA
	OR 2SA1175(TF)		MKA
	OR 2SA1175(TH)		MKA
	OR 2SA1175(TJ)		MKA
	OR 2SA1175(TK)		MKA
	OR 2SA1309A(Q,R,S)		MKA
	OR 2SA564A(Q,R,S)		
	OR 2SA733(TK)		MKA

Ref. No.	Part No.	Part Name & Description	Remarks
	OR 2SA733(TP)		MKA
	OR 2SA733(TQ)		MKA
Q821	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q822	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q823	2SC1684(Q,R,S)		
	OR 2SC2785(TE)		MKA
	OR 2SC2785(TF)		MKA
	OR 2SC2785(TH)		MKA
	OR 2SC2785(TJ)		MKA
	OR 2SC2785(TK)		MKA
	OR 2SC3311A(Q,R,S)		
	OR 2SC945A(TKA)		
	OR 2SC945A(TPA)		
	OR 2SC945A(TQA)		
Q3001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3002	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3310	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q3311	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q3314	HN1C01F(GR)	COMPLX CMP SI NPN CHIP	
	OR IMX1	COMPLX CMP SI NPN CHIP	
	OR XN4501	COMPLX CMP SI NPN CHIP	
Q3315	DTA124EK	CHIP	
	OR UN2112	CHIP	
Q4001	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q4002	2SD601A(R,S)	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q4003	2SD601A(R,S)	CHIP	
	OR 2SD1819A(R,S)	CHIP	
Q4031	2SD2097TV2R	CHIP	
	OR 2SD235800A	CHIP	
	(L)		
Q4101	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q4154	UN2212	CHIP	
	(L)		

Ref. No.	Part No.	Part Name & Description	Remarks
Q4171	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5301	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q5901	2SD1858(R)		MKA
	OR 2SD2259		
Q6002	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q6003	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6004	2SA1037K146R	CHIP	
	OR 2SB709A	CHIP	
Q6005	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6006	DTA143EK	CHIP	
	OR UN211L	CHIP	
Q6007	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q6009	VEKS5707	PHOTO SENSOR UNIT	
Q6010	VEKS5707	PHOTO SENSOR UNIT	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D401	ERB12-01		
	OR ERB12-01RKV1		
	OR ERB12-01V		
D503	ERB43-04V		
	OR ES1V		
D504	MA4047-H	ZENER 4.7V	
	OR MA4047-M	ZENER 4.7V	
	OR RD4.7ESAB	ZENER 4.7V	
	OR RD4.7ESAB2	ZENER 4.7V	
	OR 04AZ4.7ZTPA7	ZENER 4.7V	
D505	MA165		
	OR 1SS119		
	OR 1SS133T		
D524	MA165		
	OR 1SS119		
	OR 1SS133T		
D553	ERB43-04V		
	OR ES1V		
D554	MA167		
	OR 4148-TA		MKA
D558	ERB43-04V		
	OR ES1V		
D560	ERB44-04V		
D591	TRPF5B0M050K	THERMISTOR	⚠ MKA
	OR VRPSKF5JM050	THERMISTOR	⚠ MKA
D801	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D802	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D803	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D804	EM02BMV		⚠ MKA
	OR ERC13-08		⚠ MKA
D805	4148-TA		MKA
D806	MA2062	ZENER 6.2V	⚠ MKA
D807	MA700		
D808	ERB43-04V1		MKA
D809	ERB43-04V1		MKA
D810	ERB81-004V1		
	OR RK14V1		
D811	MA110	CHIP	
	OR MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D812	MA110	CHIP	
	OR MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D814	RU30A014-305		
D815	ERC30-01L3		
	OR RU3YXLFC1		
D816	MA4120-L	ZENER 12V	
D817	MA188		
	OR 1SS244T-77		
D818	MA4033-H	ZENER 3.3V	
D819	MA165		
	OR 1SS119		
	OR 1SS133T		
D822	MA167		
	OR 4148-TA		MKA
D823	S1WBA60B		⚠
D826	ERB43-04V1		MKA
D827	MA4075-M	ZENER 7.5V	
D829	RZ1200	ZENER 12V	⚠
D831	MA4300-H	ZENER 30V	
	OR MA4300-M	ZENER 30V	
D832	ERB43-04V1		MKA
D834	MA165		
	OR1SS119		
	OR 1SS133T		
D836	MA4130-L	ZENER 13V	MKA
D837	MA165		
	OR 1SS119		
	OR 1SS133T		
D838	MA110	CHIP	
	OR MA111	CHIP	
	OR 1SS355TE-17	CHIP	
D839	MA4120-L	ZENER 12V	
D840	MA4051N-H	ZENER 5.1V	
	OR MA4051NH	ZENER 5.1V	
D841	EG01		
	OR ERA18-04		
D842	MA188		
	OR 1SS244T-77		
D843	MA165		
	OR 1SS119		
	OR 1SS133T		
D844	MA858		
	OR 1SS135T-77		
D845	MA165		
	OR 1SS119		
	OR 1SS133T		
D850	MA4100N	ZENER 10V	
	OR RD10JSAB3	ZENER 10V	
D851	MA165		
	OR 1SS119		
	OR 1SS133T		
D852	MA165		
	OR 1SS119		
	OR 1SS133T		
D880	MA185		
D881	ERZV10V361CS	SUEGE ABSORBER 360	⚠ MKA
D882	ERZV10V361CS	SUEGE ABSORBER 360	⚠ MKA
D4031	MA4056-M	ZENER 5.6V	
	(L)		
D4171	MA165		
	OR 1SS119		
	OR 1SS133T		
D4591	RD9.1EW	ZENER 9.1V	
D5501	MA4062-L	ZENER 6.2V	⚠
D5602	MA165		
	OR 1SS119		
	OR 1SS133T		
D5603	MA165		
	OR 1SS119		
	OR 1SS133T		

Ref. No.	Part No.	Part Name & Description	Remarks
D6001	VEKS5708	SENSOR LED UNIT	
D6002	MA165		
	OR 1SS119		
	OR 1SS133T		
D6003	MA165		
	OR 1SS119		
	OR 1SS133T		
D6201	MA165		
	OR 1SS119		
	OR 1SS133T		
D6202	MA165		
	OR 1SS119		
	OR 1SS133T		
D6301	SLP913C81HAB	LED RED	
D6302	SLP313C81HAB	LED GREEN	
D6303	SLP413C81HAB	LED ORANGE	MKA

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R401	ERDS2TJ271	270	
R402	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R409	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R410	ERDS2TJ392	3.9K	
R411	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R413	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R414	ERDS1FJ1R2P	1/2W 1.2	⚠
R422	ERD25FJ101P	100	⚠
R427	ERQ14AJ5R6P	FUSE 5.6	⚠ MKA
R431	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R432	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R433	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R434	ERDS2TJ103	10K	
R435	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R436	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R466	ERJ6GEYJ683V	MGF CHIP 1/10W 68K	
R468	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R474	ERDS2TJ152	1.5K	
R501	ERDS2TJ681	680	
R502	ERDS2TJ821	820	
R503	ER0S2THF1022	METAL FILM +-1% 10.2K	⚠ MKA
	OR ER0S2TKF1022	METAL FILM +-1% 10.2K	⚠ MKA
	OR VRESR4TF1022	METAL FILM +-1% 10.2K	⚠ MKA
R509	ERDS2TJ101	100	
R511	ERG2ANJ222H	METAL OXIDE 2W 2.2K	MKA
R512	ERDS2TJ222	2.2K	
R513	ERDS2TJ472	4.7K	
R516	LAR05222J09	W FLMPRF 5W 2.2K	MKA
R519	ERDS2TJ822	8.2K	
R529	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R535	ERDS2TJ472	4.7K	
R536	ERDS2TJ562	5.6K	
R546	ERDS2TJ681	680	
R552	ERDS2TJ273	27K	
R553	ERDS2TJ102	1K	
R554	ERDS2TJ123	12K	
R555	ERDS2TJ823	82K	
R556	ERDS2TJ823	82K	
R558	ERG2ANJ561H	METAL OXIDE 2W 560	
R559	ERDS2TJ123	12K	
R561	ERQ2CJP1R2S	FUSE 2W 1.2	⚠ MKA
R562	ERF2AK3R3P	W FLMPRF +-10% 2W 3.3	MKA
R565	ERDS1FJ1R0P	1/2W 1	⚠
R571	ERDS2TJ101	100	
R572	ERDS2TJ331	330	
R573	ERDS2TJ221	220	
R574	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R581	ERDS1FJ1R5P	1/2W 1.5	⚠
R582	ERDS1FJ1R2P	1/2W 1.2	⚠
R584	ERDS2TJ562	5.6K	
R585	ERDS2TJ473	47K	
R586	ERDS2TJ393	39K	

Ref. No.	Part No.	Part Name & Description	Remarks
R801	ERF5AKR47	W FLMPRF +-10% 5W 0.47	⚠ MKA
	OR LAR05R47K02	W FLMPRF +-10% 5W 0.47	⚠ MKA
R802	ERD25FJ100P	10	⚠
R803	ERDS2TJ272	2.7K	
R804	ERDS2TJ103	10K	
R805	ERQ12AJ561P	FUSE 1/2W 560	⚠ MKA
R806	ERDS2TJ682	6.8K	
R807	ERDS2TJ221	220	
R808	ERDS2TJ182	1.8K	
R809	ERDS2TJ562	5.6K	
R810	ERDS2TJ103	10K	
R811	ERG2SJ273H	METAL OXIDE 2W 27K	MKA
R817	ERDS2TJ221	220	
R818	VRESC2TK825T	SOLID +-10% 1/2W 8.2M	⚠
R819	ERDS2TJ221	220	
R820	ERDS2TJ392	3.9K	
R823	ERDS2TJ102	1K	
R827	ERDS2TJ103	10K	
R832	ERJ6GEYJ100V	MGF CHIP 1/10W 10	
R833	ERJ6GEYJ680V	MGF CHIP 1/10W 68	
R834	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R835	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R836	ERDS2TJ124	120K	
R837	ERDS2TJ124	120K	
R838	ER0S2TKF3901	METAL FILM +-1% 3.9K	
R839	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R840	ERD25FJ100P	10	⚠
R842	ER0S2TKF1602	METAL FILM +-1% 16K	
R846	ERDS2TJ222	2.2K	
R847	ER0S2TKF1602	METAL FILM +-1% 16K	⚠
R848	ER0S2TKF1432	METAL FILM +-1% 14.3K	⚠ MKA
R849	ER0S2TKF3901	METAL FILM +-1% 3.9K	⚠
R850	EVMEYSA00B53	VARIABLE 5K	⚠ MKA
R852	VRESE2TJ154	1/2W 150K	
R854	ERDS2TJ182	1.8K	
R855	ERDS2TJ100	10	
R856	ERX2SZJR10P	METAL FILM 2W 0.1	MKA
R857	ERDS2TJ152	1.5K	
R858	ERDS2TJ332	3.3K	
R860	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R861	ERG2SJ333H	METAL OXIDE 2W 33K	
R862	ERDS2TJ222	2.2K	
R863	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R864	ER0S2TKF1602	METAL FILM +-1% 16K	⚠
R865	ERDS2TJ222	2.2K	
R868	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R880	ER0S2TKF3901	METAL FILM +-1% 3.9K	
R882	ERDS2TJ682	6.8K	
R883	ERD25FJ100P	10	⚠
R885	ERDS2TJ104	100K	
R890	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R891	ERDS2TJ223	22K	
R892	ERDS2TJ102	1K	
R897	ERDS2TJ153	15K	
R898	ERDS2TJ153	15K	
R899	ERDS2TJ472	4.7K	
R1212	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R1214	ERDS2TJ153	15K	
R1216	ERDS2TJ472	4.7K	
R1218	ERDS2TJ152	1.5K	
R1219	ERDS2TJ153	15K	
R2601	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2602	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2603	ERJ6GEYJ330V	MGF CHIP 1/10W 33	
R2604	ERDS2TJ1R0	1	
R2605	ERDS2TJ1R2	1.2	
R2606	ERDS2TJ561	560	
R3001	ERDS2TJ101	100	
R3006	ERDS2TJ101	100	
R3010	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3016	ERJ6GEYJ121V	MGF CHIP 1/10W 120	
R3017	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

Ref. No.	Part No.	Part Name & Description	Remarks
R3024	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3025	ERJ6GEYJ125V	MGF CHIP 1/10W 1.2M	
R3026	ERJ6GEYJ474V	MGF CHIP 1/10W 470K	
R3028	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3029	ERJ6GEYJ151V	MGF CHIP 1/10W 150	
R3032	ERJ6GEYJ122V	MGF CHIP 1/10W 1.2K	
R3035	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3036	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R3037	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R3038	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3043	ERJ6GEYG392V	MGF CHIP +-2% 1/10W 3.9K	
	(H,I,J,K)		
R3044	ERJ6GEYG682V	MGF CHIP +-2% 1/10W 6.8K	
	(H,I,J,K)		
R3045	ERJ6GEYG222V	MGF CHIP +-2% 1/10W 2.2K	
	(H,I,J,K)		
R3046	ERJ6GEYG682V	MGF CHIP +-2% 1/10W 6.8K	
	(H,I,J,K)		
R3077	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R3081	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3082	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3083	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R3084	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3085	ERJ6GEYJ181V	MGF CHIP 1/10W 180	
R3091	ERJ6GEYJ750V	MGF CHIP 1/10W 75	
R3302	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R3303	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3304	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3305	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3306	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3307	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3308	ERDS2TJ103	10K	
	(L)		
R3309	ERDS2TJ103	10K	
	(L)		
R3311	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R3312	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3313	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R3321	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3325	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3326	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R3329	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R3330	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3336	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R3345	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R3361	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3362	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R3363	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R3366	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3375	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R3377	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3378	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R3379	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R3380	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R3381	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R3390	ERJ6GEYJ222V	MGF CHIP 1/10W2.2K	
R4001	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R4002	ERJ6GEYJ334V	MGF CHIP 1/10W 330K	
R4003	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R4004	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R4005	ERJ6GEYJ225V	MGF CHIP 1/10W 2.2M	
R4006	ERJ6GEYJ681V	MGF CHIP 1/10W 680	
R4007	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R4008	ERJ6GEYJ273V	MGF CHIP 1/10W 27K	
R4009	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4010	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4011	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4012	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R4014	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R4015	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4018	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
	(H,K,L)		
	ERJ6GEYJ123V	MGF CHIP 1/10W 12K	

Ref. No.	Part No.	Part Name & Description	Remarks
	(I,J)		
R4021	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R4033	ERDS2TJ102	1K	
	(L)		
R4034	ERDS2TJ102	1K	
	(L)		
R4035	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
	(L)		
R4051	ERJ6GEYJ393V	MGF CHIP 1/10W 39K	
R4052	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4101	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R4102	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R4103	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4171	ERJ6GEYJ153V	MGF CHIP 1/10W 15K	
R4172	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4173	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R4175	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4502	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R4504	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
R4506	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4509	ERDS2TJ100	10	
R4512	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(L)		
R4514	ERJ6GEYJ823V	MGF CHIP 1/10W 82K	
	(L)		
R4516	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(L)		
R4519	ERDS2TJ100	10	
	(L)		
R4521	ERQ1ABJP4R7S	FUSE 1W 4.7	⚠ MKA
	(H,I,J,K)		
	ERQ1ABJP2R2S	FUSE 1W 2.2	⚠ MKA
	(L)		
R4522	VCYSHRE104ZF	CERAMIC +80%-20% 25V 0.1	
R4523	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R4524	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R4591	ERDS2TJ681	680	
R4592	ERDS2TJ681	680	
R4593	ERDS2TJ681	680	
R4594	ERDS2TJ681	680	
R4701	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R4702	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5301	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5304	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R5305	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R5306	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5308	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5309	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R5311	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5312	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5313	ERJ6GEYJ331V	MGF CHIP 1/10W 330	
R5314	ERDS2TJ272	2.7K	
R5315	ERDS2TJ272	2.7K	
R5316	ERDS2TJ272	2.7K	
R5324	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5325	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5401	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5402	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5403	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R5405	ERJ6GEYJ822V	MGF CHIP 1/10W 8.2K	
R5406	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5501	ERJ6GEYJ471V	MGF CHIP 1/10W 470	
R5502	ERJ6GEYJ394V	MGF CHIP 1/10W 390K	
R5503	ERDS2TJ471	470	
R5504	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5505	ERJ6ENF3241V	MGF CHIP +-1% 1/10W 3.24K	⚠
R5506	ERDS2TJ473	47K	
R5508	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R5510	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5511	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R5512	ERDS2TJ151	150	
R5513	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
R5515	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	

Ref. No.	Part No.	Part Name & Description	Remarks
R5601	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R5604	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R5611	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5612	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R5614	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R5902	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R5932	ERDS2TJ101	100	
R5933	ERDS2TJ101	100	
R6001	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6002	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6005	ERJ6GEYJ682V	MGF CHIP 1/10W 6.8K	
R6006	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R6007	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6008	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6011	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6013	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6024	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6025	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
	(L)		
R6026	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6027	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6028	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6029	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6032	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(L)		
R6051	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(I,J,L)		
R6054	ERDS2TJ221	220	
R6055	ERDS2TJ221	220	
R6056	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6057	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6058	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6059	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6060	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6061	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6062	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(L)		
R6063	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6064	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(I,J,L)		
R6065	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(H,K)		
R6066	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6067	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(L)		
R6068	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
	(I,J,L)		
R6071	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(L)		
R6072	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6077	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(L)		
R6078	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6081	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6082	ERDS2TJ222	2.2K	
R6098	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6099	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6100	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R6101	ERDS2TJ121	120	
R6102	ERDS2TJ151	150	
R6103	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6104	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6105	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R6106	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6107	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6108	ERDS2TJ681	680	
R6109	ERDS2TJ122	1.2K	
R6110	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6111	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6113	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6114	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6120	ERDS2TJ560	56	

Ref. No.	Part No.	Part Name & Description	Remarks
R6121	ERJ6GEYJ391V	MGF CHIP 1/10W 390	
R6122	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6123	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6124	ERJ6GEYJ475V	MGF CHIP 1/10W 4.7M	
R6125	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R6126	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6127	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6128	ERDS2TJ221	220	
R6129	ERDS2TJ221	220	
R6130	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6150	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6151	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6152	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6159	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
R6160	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
	(H,I,J,K)		
R6161	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
	(H,I,J,K)		
R6162	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6163	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6164	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6165	ERJ6GEYJ562V	MGF CHIP 1/10W 5.6K	
R6173	ERJ6GEYG332V	MGF CHIP +-2% 1/10W 3.3K	
R6174	ERDS2TG223	+-2% 22K	
R6175	ERDS2TG273	+-2% 27K	
R6176	ERDS2TJ103	10K	
R6177	ERDS2TJ103	10K	
R6178	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6179	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R6181	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
	(I,J,L)		
R6182	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
	(H,I,J,K)		
R6183	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R6184	ERJ6GEYJ563V	MGF CHIP 1/10W 56K	
	(H,K)		
R6202	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6203	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R6204	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6205	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R6206	ERJ6GEYJ221V	MGF CHIP 1/10W 220	
R6209	ERJ6GEYJ152V	MGF CHIP 1/10W 1.5K	
R6210	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R6212	ERJ6GEYG222V	MGF CHIP +-2% 1/10W 2.2K	
R6213	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R6214	ERJ6GEYG102V	MGF CHIP +-2% 1/10W 1K	
R6216	ERJ6GEYJ274V	MGF CHIP 1/10W 270K	
R6217	ERJ6GEYJ184V	MGF CHIP 1/10W 180K	
R6301	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6302	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6303	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6304	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6305	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6307	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
R6308	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R6314	ERDS2TJ560	56	
R7001	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7002	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7003	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7004	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R7005	ERJ6GEYJ182V	MGF CHIP 1/10W 1.8K	
	(H,I,J,K)		
	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
	(L)		
R7006	ERJ6GEYJ271V	MGF CHIP 1/10W 270	
R7007	ERDS2TJ102	1K	
	(H,K)		

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C401	ECEA1HGE2R2	ELECTROLYTIC 50V 2.2	
C402	ECA1CM471B	ELECTROLITIC 16V 470	
C408	ECA1HGE010KB	ELECTROLYTIC 50V 1	MKA

Ref. No.	Part No.	Part Name & Description	Remarks
C409	ECA1VM101B	ELECTROLYTIC 35V 100	
C413	ECQB1H104KF	POLYESTER 50V 0.1	
C414	ECA1EM102E	ELECTROLYTIC 25V 1000	MKA
C418	ECA1VM221B	ELECTROLYTIC 35V 220	
C458	ECQB1H103KM	POLYESTER 50V 0.01	MKA
C510	ECKW2H102KB5	CERAMIC 500V 1000P	
C513	ECA1HM100B	ELECTROLYTIC 50V 10	
C524	ECKC3D821KBP	CERAMIC 2KV 820	⚠ MKA
C552	ECA1EM471B	ELECTROLYTIC 25V 470	
C553	ECKW2H471KB5	CERAMIC 500V 470P	MKA
C554	ECWH12H822JS	POLYESTER +-5% 1.2KV 8200P	⚠ MKA
	OR ECWH16822JVB	POLYESTER +-5% 1.2KV 8200P	⚠ MKA
	OR LSCFN12822JB	POLYESTER +-5% 1.2KV 8200P	⚠ MKA
C556	ECWF2434JBB	POLYESTER +-5% 500V 0.43	⚠ MKA
	OR ECWF2434JSB	POLYESTER +-5% 500V 0.43	⚠ MKA
	OR LSCFM2434JM	POLYESTER +-5% 500V 0.43	⚠ MKA
C558	ECA1VM101B	ELECTROLYTIC 35V 100	
C560	ECA2EM100B	ELECTROLYTIC 250V 10	⚠ MKA
C561	ECA2CM2R2B	ELECTROLYTIC 160V 2.2	MKA
C563	ECEA160V33	ELECTROLYTIC 160V 33	MKA
C571	ECA1HM3R3B	ELECTROLYTIC 50V 3.3	MKA
C801	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C802	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C803	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C804	ECKM2H472PE	CERAMIC +100%-0% 500V 4700P	
C805	VSQ1003-F	ARRESTER	⚠ MKA
C806	ECKATS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR ECKETS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR VCKSEJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSELD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHLD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSTJG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSTLG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSUJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSULD221KW	CERAMIC 125V 220P	⚠ MKA
C807	ECEA1PEE331	ELECTROLYTIC 18V 330	
C808	ECQU2A823MLA	POLYESTER +-20% 250V 0.082	⚠ MKA
	OR LSCFQ2A823MC	POLYESTER +-20% 250V 0.082	⚠ MKA
C809	ECKATS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR ECKETS221MB	CERAMIC +-20% 125V 220P	⚠ MKA
	OR VCKSEJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSELD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSHLD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSTJG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSTLG221KW	CERAMIC 250V 220P	⚠ MKA
	OR VCKSUJD221KW	CERAMIC 125V 220P	⚠ MKA
	OR VCKSULD221KW	CERAMIC 125V 220P	⚠ MKA
C811	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C812	ECQB1H104P9	POLYESTER +100%-0% 50V 0.1	
C813	ECEC2DP561BB	ELECTROLYTIC 200V 330	⚠ MKA
	OR VCESAS2D561E	ELECTROLYTIC 200V 560	⚠ MKA

Ref. No.	Part No.	Part Name & Description	Remarks
	OR VCESAY2D561E	ELECTROLYTIC 200V 560	⚠ MKA
C814	ECEA1PEE331	ELECTROLYTIC 18V 330	
C817	VCKSFKK221KW	CERAMIC 125V 220	⚠
	OR VCKSFMK221KW	CERAMIC 125V 220	⚠
	OR VCKSFVK221KW	CERAMIC 125V 220	⚠
	(H,I,J,K)		
	VCKSFKK102MX	CERAMIC +-20% 125V 1000P	⚠
	OR VCKSFMK102MX	CERAMIC +-20% 125V 1000P	⚠ MKA
	OR VCKSFVK102MX	CERAMIC +-20% 125V 1000P	⚠ MKA
	(L)		
C818	VCYSHRE104ZF	CERAMIC +80%-20% 25V 0.1	
C819	ECA1EM101B	ELECTROLYTIC 25V 100	
C820	ECQB1H223JF	POLYESTER +-5% 50V 0.022	
C821	ECQB1H272KF	POLYESTER 50V 2700P	MKA
C822	VCKSFKK332MY	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSFMK332MY	CERAMIC +-20% 125V 3300P	⚠
	OR VCKSFVK332MY	CERAMIC +-20% 125V 3300P	⚠ MKA
C824	ECKC3D102KB	CERAMIC 2KV 1000P	
C825	ECKW2H102KB5	CERAMIC 500V 1000P	
C827	ECKW2H221KB5	CERAMIC 500V 220P	
C830	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C832	VCESAU2D221	ELECTROLYTIC 200V 220	⚠ MKA
C834	ECUV1H562KBN	C CHIP 50V 5600P	
C835	ECEA1PEE102	ELECTROLYTIC 18V 1000	
C836	ECQB1H683JF	POLYESTER +-5% 50V 0.068	MKA
C837	ECEA2DU820YB	ELECTROLYTIC 200V 82	⚠
	OR VCESAN2D820B	ELECTROLYTIC 200V 82	⚠
	OR VCESR2D820XB	ELECTROLYTIC 200V 82	⚠
C838	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C840	ECEA1HKG010	ELECTROLYTIC 50V 1	
C841	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C843	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C845	ECA1CM101B	ELECTROLYTIC 16V 100	
C846	ECA2DHG4R7B	ELECTROLYTIC 200V 4.7	
C847	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C848	ECQB1H471JF	POLYESTER +-5% 50V 470P	MKA
C849	VCKSWMM332KR	CERAMIC 2KV 3300P	MKA
C850	ECKATS103MF	CERAMIC +-20% 125V 0.01	⚠
	OR ECKETS103MF	CERAMIC +-20% 125V 0.01	⚠
	OR VCKSEKD103PZ	CERAMIC +80%-20% 125V 0.01	⚠
	OR VCKSEMD103PZ	CERAMIC +80%-20% 125V 0.01	⚠
	OR VCKST3G103MY	CERAMIC +-20% 250V 0.01	⚠
	OR VCKSU3D103MY	CERAMIC +-20% 125V 0.01	⚠ MKA
C851	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C880	ECA1HM4R7B	ELECTROLYTIC 50V 4.7	
C885	ECA1EM470B	ELECTROLYTIC 25V 47	
C1202	ECA1EM101B	ELECTROLYTIC 25V 100	
C1204	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C1205	ECA1EM101B	ELECTROLYTIC 25V 100	
C1206	ECA1CM471B	ELECTROLITIC 16V 470	
C2604	ECUV1E104KBN	C CHIP 25V 0.1	
C2605	ECUV1E104KBN	C CHIP 25V 0.1	
C2606	ECUV1E104KBN	C CHIP 25V 0.1	
C2607	ECUV1E104KBN	C CHIP 25V 0.1	
C2608	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2609	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2610	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2611	ECUV1E103KBN	C CHIP 25V 0.01	
C2612	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2613	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2614	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C2615	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	

Ref. No.	Part No.	Part Name & Description	Remarks
C3001	ECUV1H103KBN	C CHIP 50V 0.01	
C3003	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3004	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3006	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3007	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3008	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3009	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C3010	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3011	ECUV1H470JCN	C CHIP +-5% 50V 47P	
C3013	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3015	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3016	ECEA1CKS100	ELECTROLYTIC 16V 10	
C3019	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3020	ECEA1CKA220	ELECTROLYTIC 16V 22	
C3021	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3022	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C3023	ECUV1H680JCN	C CHIP +-5% 50V 68P	
C3024	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3025	ECUV1E104KBN	C CHIP 25V 0.1	
C3026	ECUV1H822KBN	C CHIP 50V 8200P	
C3027	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3030	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3031	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3032	ECUV1C474ZFN	C CHIP +80%-20% 16V 0.47	
C3034	ECUV1H181JCN	C CHIP +-5% 50V 180P	
C3035	ECUV1H330JCN	C CHIP +-5% 50V 33P	
C3036	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3038	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3041	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3043	ECUV1H392KBN	C CHIP 50V 3900P	
C3044	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3045	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C3046	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3047	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C3048	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3050	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3053	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3054	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
	(L)		
C3055	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3056	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3057	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3058	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3060	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3081	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3082	ECUV1H332KBN	C CHIP 50V 3300P	
C3083	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3231	ECEA1HKA010	ELECTROLYTIC 50V 1	
C3232	ECUV1H102KBN	C CHIP 50V 1000P	
C3234	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C3235	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3236	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3237	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3301	ECUV1H220JCN	C CHIP +-5% 50V 22P	
C3302	ECUV1H180JCN	C CHIP +-5% 50V 18P	
C3303	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3304	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C3308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3309	ECEA1HKS010	ELECTROLYTIC 50V 1	
C3310	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3311	ECUV1H333KBN	C CHIP 50V 0.033	
C3312	ECUV1H102KBN	C CHIP 50V 1000P	
C3313	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3314	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C3326	ECEA1CKA100	ELECTROLYTIC 16V 10	
C3367	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4001	ECUV1C224ZFN	C CHIP +80%-20% 16V 0.22	
C4002	ECEA1HKS010	ELECTROLYTIC 50V 1	
C4003	ECUV1H272KBN	C CHIP 50V 2700P	
C4004	ECUV1H103KBN	C CHIP 50V 0.01	
C4005	ECEA0JKS220	ELECTROLYTIC 6.3V 22	
C4006	ECUV1H102KBN	C CHIP 50V 1000P	
C4007	ECEA0JKA220	ELECTROLYTIC 6.3V 22	

Ref. No.	Part No.	Part Name & Description	Remarks
C4008	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4009	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4010	ECUV1E333KBN	C CHIP 25V 0.033	
C4011	ECUV1H103KBN	C CHIP 50V 0.01	
C4012	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4013	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C4014	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4018	ECUV1H103KBN	C CHIP 50V 0.01	
	(H,I,J,K)		
C4020	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4031	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(L)		
C4051	ECUV1E333KBN	C CHIP 25V 0.033	
C4102	ECQB1562JF	POLYESTER +-5% 100V 5600P	
C4103	ECUV1H103KBN	C CHIP 50V 0.01	
C4104	ECUV1H103KBN	C CHIP 50V 0.01	
C4105	ECEA1CKA220	ELECTROLYTIC 16V 22	
C4171	ECEA1HKA010	ELECTROLYTIC 50V 1	
C4502	ECEA1CKA100	ELECTROLYTIC 16V 10	
C4504	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C4506	ECEA1CKA470	ELECTROLYTIC 16V 47	
C4508	ECA1CM221B	ELECTROLYTIC 16V 220	
C4509	ECUV1H473KBN	C CHIP 50V 0.047	
C4512	ECEA1CKA100	ELECTROLYTIC 16V 10	
	(L)		
C4514	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
	(L)		
C4516	ECEA1CKA470	ELECTROLYTIC 16V 47	
	(L)		
C4518	ECA1CM221B	ELECTROLYTIC 16V 220	
	(L)		
C4519	ECUV1H473KBN	C CHIP 50V 0.047	
	(L)		
C4521	ECA1EM102B	ELECTROLYTIC 25V 1000	MKA
C4524	VCYSHRE104ZF	CERAMIC +80%-20% 25V 0.1	
	(L)		
C5301	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5302	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C5303	ECEA1HKAR47	ELECTROLYTIC 50V 0.47	
C5305	ECEA1HKAR33	ELECTROLYTIC 50V 0.33	
C5306	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5307	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5308	ECEA1CKN100	ELECTROLYTIC 16V 10	
C5401	VCUSTBC224KB	C CHIP +-10% 16V 0.22	
C5402	ECUV1H222KBN	C CHIP 50V 2200P	
C5403	ECEA1HKA2R2	ELECTROLYTIC 50V 2.2	
C5501	ECUV1E183KBN	C CHIP 25V 0.018	
C5502	ECUV1H681KBN	C CHIP 50V 680P	
C5505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5506	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5507	ECEA1CKA100	ELECTROLYTIC 16V 10	
C5508	ECUV1H221JSN	C CHIP +-5% 50V 220P	MKA
C5510	ECEA1HKA010	ELECTROLYTIC 50V 1	
C5511	ECUV1E333KBN	C CHIP 25V 0.033	
C5516	ECUV1E333KBN	C CHIP 25V 0.033	
C5601	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5602	ECUV1E104KBN	C CHIP 25V 0.1	
C5603	ECUV1H150JCN	C CHIP +-5% 50V 15P	
C5604	ECEA1HKA010	ELECTROLYTIC 50V 1	
C5605	ECUV1E153KBN	C CHIP 25V 0.015	
C5902	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5903	ECEA1CKA470	ELECTROLYTIC 16V 47	
C5904	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5905	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C5906	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C5932	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6001	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C6004	ECEA0JKA101	ELECTROLYTIC 6.3V 100	
C6005	ECUV1H103KBN	C CHIP 50V 0.01	
C6009	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6011	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6012	ECUV1H180JCN	C CHIP +-5% 50V 18P	
C6013	ECUV1H150GCN	C CHIP +-2% 50V 15P	

Ref. No.	Part No.	Part Name & Description	Remarks
C6014	ECUV1H020CCN	C CHIP +-0.25P 50V 2P	
C6015	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6016	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6017	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6018	ECUV1H101JCN	C CHIP +-5% 50V 100P	
C6019	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6022	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6029	ECUV1H102KBN	C CHIP 50V 1000P	
C6030	ECUV1H102KBN	C CHIP 50V 1000P	
C6035	ECEA1CKS100	ELECTROLYTIC 16V 10	
C6061	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C6100	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C6201	ECUV1H102KBN	C CHIP 50V 1000P	
C6203	ECUV1H103KBN	C CHIP 50V 0.01	
C6206	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6207	ECUV1H680JCN	C CHIP +-5% 50V 68P	
C6208	ECUV1E104KBN	C CHIP 25V 0.1	
C6209	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C6211	ECEA0JKS470	ELECTROLYTIC 6.3V 47	
C6212	ECUV1H100CCN	C CHIP +-0.25P 50V 10P	
C6213	ECUV1H272KBN	C CHIP 50V 2700P	
C6214	ECUV1H102KBN	C CHIP 50V 1000P	
C6218	ECEA0JKS101	ELECTROLYTIC 6.3V 100	
C6219	ECEA1EKS4R7	ELECTROLYTIC 25V 4.7	
C6220	ECUV1H103KBN	C CHIP 50V 0.01	
C6223	ECUV1E104KBN	C CHIP 25V 0.1	
C6235	ECEA0JKA221	ELECTROLYTIC 6.3V 220	
C6301	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C6302	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C7002	ECUV1H102KBN	C CHIP 50V 1000P	
	(I,J,L)		
C7006	ECA0JM102B	ELECTROLYTIC 6.3V 1000	
C7007	ECUV1H102KBN	C CHIP 50V 1000P	
C7008	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C7009	ECUV1H222KBN	C CHIP 50V 2200P	
C7010	ECEA1CKA100	ELECTROLYTIC 16V 10	

FILTERS

Ref. No.	Part No.	Part Name & Description	Remarks
FL4051	VLFS0014		

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L501	ELH5L4108		⚠ MKA
	OR ELH5L423		⚠
	OR LLH2601T		⚠
L552	VLPS0113	FERRITE BEAD W/LEAD	MKA
L553	VLQSW07D220M	+-20% 22	
L802	VLQSW07D220M	+-20% 22	
L803	ELF18D650C	LINE FILTER 1.7A 8.2M	⚠
	ORELF21V018A	LINE FILTER 1.7A 8.2M	⚠ MKA
	OR LLN63021A	LINE FILTER 1.7A 8.2M	⚠ MKA
	OR LLN63055A	LINE FILTER 1.7A 8.2M	⚠ MKA
L804	VLPS0087		MKA
L806	VLPS0087		MKA
L808	VLPS0093	FERRITE BEAD W/LEAD	
L809	VLPS0083		
L810	VLPS0083		
L811	VLPS0005A	BEAD INDUCTOR	
L812	VLQSW07D220M	+-20% 22	
L813	VLQSW07D220M	+-20% 22	
L814	VLPS0087		MKA
L815	VLPS0087		MKA
	(H,I,J,K)		
L3001	VLQSH02R390K	39	
L3002	ELESN101KA	100	
L3004	ELEXT270KE04	27	MKA
L3005	VLQSH02R330K	33	
L3010	ELESN470KA	47	
L3231	ELESN221KA	220	
L3303	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(H,K)		
	VLPS0111	CHIP BEAD INDUCTOR	MKA
	(I,J,L)		
L3304	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(H,K)		
	VLPS0111	CHIP BEAD INDUCTOR	MKA
	(I,J,L)		
L3305	ERJ6GEYJ101V	MGF CHIP 1/10W 100	
	(H,K)		
	VLPS0111	CHIP BEAD INDUCTOR	MKA
	(I,J,L)		
L4001	VLQSU06R153K	15M	
L4002	ELESN101KA	100	
L4004	VLQSH02R220K	22	
L4101	ELESN471KA	470	
L5901	ELESN101KA	100	
L6002	ELEXT101KE04	100	
L7002	ELESN100KA	10	

CRYSTAL OSCILLATOR

Ref. No.	Part No.	Part Name & Description	Remarks
X3301	VSXS0238		MKA
X5501	CSB503F38		
X5601	VSXS0208-A		MKA
X6001	VSXS0784		MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P3001	LSJP0085	CONNECTOR 10P	
	(H,I,J,K)		
	VJPS0882	CONNECTOR 12P	
	(L)		
P4001	VJSS0888	FE CONNECTOR 2P	
P4591	VJPS0268	CONNECTOR 2P	
	(H,I,J,K)		
	VJPS0274	CONNECTOR 4P	
	(L)		
P5301	VJSS0901	CONNECTOR 5P	MKA
P552	VJSS0898	4P WIRE TRAP	MKA
P6001	VJPS0275	CONNECTOR 5P	
P6201	LSJP0089	CONNECTOR 12P	
P6202	LSJP0088	CONNECTOR 12P	

SWITCHES

Ref. No.	Part No.	Part Name & Description	Remarks
SW6001	LSSH0002	LEAF SWITCH-SAFETY TAB	
SW6002	LSSS0008	MODE SWITCH	MKA
SW6301	EVQ21405R	PUSH SWITCH	
SW6302	EVQ21405R	PUSH SWITCH	
SW6303	EVQ21405R	PUSH SWITCH	
SW6304	EVQ21405R	PUSH SWITCH	
SW6305	EVQ21405R	PUSH SWITCH	
SW6306	EVQ21405R	PUSH SWITCH	
SW6307	EVQ21405R	PUSH SWITCH	
SW6308	EVQ21405R	PUSH SWITCH	
SW6310	EVQ21405R	PUSH SWITCH	
SW6311	EVQ21405R	PUSH SWITCH	
SW6312	EVQ21405R	PUSH SWITCH	

FUSE & PROTECTOR

Ref. No.	Part No.	Part Name & Description	Remarks
F801	VSFS0003A40	FUSE 125V 4A	⚠ MKA
	OR XBA1C40NU100	FUSE 125V 4A	⚠
PR802	UNH000600A	IC PROTECTOR 1.5A	⚠
PR804	UNH000600A	IC PROTECTOR 1.5A	⚠
PR1201	UN11010	IC PROTECTOR 1.0A	⚠ MKA

RELAY

Ref. No.	Part No.	Part Name & Description	Remarks
RL801	LFN20803A	RELAY	⚠ MKA
	OR LSSY0003	RELAY	⚠ MKA

Ref. No.	Part No.	Part Name & Description	Remarks
RL802	LSSY0004	RELAY	⚠ MKA
	OR TSEH0005	RELAY	⚠

TRANSFORMER

Ref. No.	Part No.	Part Name & Description	Remarks
T501	ETH09K8AZ		MKA
T551	KFT3AA268F	FLYBACK TRANSFORMER	⚠ MKA
T801	ETS39AG1P5NC		⚠ MKA
	OR LSTP0096		⚠ MKA
T802	ETS19AB175AG		⚠ MKA
T4101	VLTS0367		MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
JK4591	LJP28016A	EARPHONE JACK SOCKET	MKA
	(H,I,J,K)		
	LJP28015A	EARPHONE JACK SOCKET	MKA
	(L)		
JK4701	LJP68005A	FRONT AUDIO/VIDEO JACK SOCKET	MKA
	(H,I,J,K)		
	LJP68003A	FRONT AUDIO/VIDEO JACK SOCKET	MKA
	(L)		

PRINTED CIRCUIT BOARD ASSEMBLY

Ref. No.	Part No.	Part Name & Description	Remarks
E2	VEPS4032A	AUDIO C.B.A.	▲ MKA
	(L)		

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E21	ENG36701G	UHF/VHF TUNER	MKA
	(I,J,L)		
E21	ENG36702G	UHF/VHF TUNER	MKA
	(H,K)		
E22	LFX6106A	AC CORD W/PLUG,125V	⚠ MKA
	OR LSJA0256	AC CORD W/PLUG,125V	⚠ MKA
	(H,I,K,L)		
E22	LFX6106B	AC CORD W/PLUG,125V	⚠ MKA
	OR LSJA0257	AC CORD W/PLUG,125V	⚠ MKA
	(J)		
E23	EYF52BC	FUSE HOLDER	
E27	TSOP1837UH1	INFRARED RECEIVER UNIT	MKA
E41	TUC77626	HEAT SINK	MKA
E42	LUS23004A	HEAT SINK	MKA
E43	LUS23005B	HEAT SINK	MKA
E44	LML69001A	ANODE LEAD CLAMPER	MKA
E46	XTV3+10G	TAPPING SCREW,STEEL	
E47	XTW3+10J	TAPPING SCREW,STEEL	
E48	XYN3+F10S	SCREW W/WASHER,STEEL	
E49	XYN3+F6S	SCREW W/WASHER,STEEL	
E67	XTV3+8J	TAPPING SCREW,STEEL	
	(L)		
E83	LUS23003A	HEAT SINK	MKA
E84	TUX77809	CLAMPER	MKA
	(L)		
E85	XYN3+J8	SCREW W/WASHER,STEEL	MKA
E86	LUS61016A	SHIELD PLATE,STEEL	MKA
E87	XTV3+8F	TAPPING SCREW,STEEL	
E133	VEKS5751	GROUNDING WIRE	
	(H,I,J,K)		

12.3.3. AUDIO C.B.A. (L) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC9001	CXA2064M	IC, LINEAR MTS/SAP SIGNAL PROCESS	MKA
IC9201	AN7420-NT	IC, LINEAR FM SIGNAL PROCESS	MKA
IC9301	BU4052BCF	IC, CMOS STANDARD LOGIC INPUT SELECT	E.S.D. MKA
	OR CD4052BCM	IC, CMOS STANDARD LOGIC INPUT SELECT	E.S.D.
IC9302	UPC4570G2-T1	IC, LINEAR OP AMP	
	OR LM833M	IC, LINEAR OP AMP	

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q9001	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q9002	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q9003	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	
Q9004	2SC2412K1	CHIP	
	OR 2SD601A	CHIP	

DIODES

Ref. No.	Part No.	Part Name & Description	Remarks
D9001	MA165		
	OR 1SS119		
	OR 1SS133T		
D9301	MA165		
	OR 1SS119		
	OR 1SS133T		

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R4213	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R4214	ERDS2TJ223	22K	
R4215	ERDS2TJ102	1K	
R4220	ERDS2TJ102	1K	
R4221	ERDS2TJ102	1K	
R9001	EVNCYAA03B14	VARIABLE 10K	
R9002	ERJ6GEYG683V	MGF CHIP +-2% 1/10W 68K	
R9003	EVNDCAA03B14	VARIABLE 10K	
R9004	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	
R9005	ERJ6GEYJ105V	MGF CHIP 1/10W 1M	
R9006	ERJ6GEYJ104V	MGF CHIP 1/10W 100K	
R9007	ERJ6GEYJ392V	MGF CHIP 1/10W 3.9K	
R9008	EVMAASA00B53	VARIABLE 5K	
R9009	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9010	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9011	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9012	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9013	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R9014	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R9015	ERJ6GEYJ333V	MGF CHIP 1/10W 33K	
R9016	ERJ6GEYJ223V	MGF CHIP 1/10W 22K	
R9017	ERJ6GEYJ821V	MGF CHIP 1/10W 820	
R9018	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9019	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9020	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R9021	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9022	ERJ6GEYJ472V	MGF CHIP 1/10W 4.7K	
R9201	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9202	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9203	ERJ6GEYJ102V	MGF CHIP 1/10W 1K	
R9204	ERJ6GEYJ224V	MGF CHIP 1/10W 220K	
R9205	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9206	EVMAASA00B53	VARIABLE 5K	
R9207	ERJ6GEYJ332V	MGF CHIP 1/10W 3.3K	
R9208	ERDS2TJ392	3.9K	
R9209	ERJ6GEYJ272V	MGF CHIP 1/10W 2.7K	
R9210	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R9211	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R9212	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9213	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R9303	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9307	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R9308	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	
R9309	ERJ6GEYJ183V	MGF CHIP 1/10W 18K	
R9310	ERJ6GEYJ103V	MGF CHIP 1/10W 10K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C4226	ECEA1CKA100	ELECTROLYTIC 16V 10	
C9001	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C9002	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C9003	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C9004	ECEA1EKA4R7	ELECTROLYTIC 25V 4.7	
C9005	ECEA1CKA100	ELECTROLYTIC 16V 10	
C9006	ECEA1HKA010	ELECTROLYTIC 50V 1	
C9007	ECUV1H562KBN	C CHIP 50V 5600P	
C9008	ECUV1E123KBN	C CHIP 25V 0.012	
C9009	ECEA1EKN4R7	ELECTROLYTIC 25V 4.7	
C9010	ECEA1HKA010	ELECTROLYTIC 50V 1	
C9011	ECEA1CKA100	ELECTROLYTIC 16V 10	
C9012	ECEA1CKA100	ELECTROLYTIC 16V 10	
C9013	ECEA1CKA100	ELECTROLYTIC 16V 10	
C9014	ECEA1EKN4R7	ELECTROLYTIC 25V 4.7	
C9015	ECEA1HKA3R3	ELECTROLYTIC 50V 3.3	
C9016	ECEA1EKN4R7	ELECTROLYTIC 25V 4.7	
C9017	ECUV1E473KBN	C CHIP 25V 0.047	
C9018	ECUV1H272KBN	C CHIP 50V 2700P	
C9019	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C9020	ECEA1CKA220	ELECTROLYTIC 16V 22	
C9201	ECUV1H103ZFN	C CHIP +80%-20%50V 0.01	
C9202	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C9203	ECEA1CKA100	ELECTROLYTIC 16V 10	
C9204	ECQP1H102J	POLYESTER +-5% 50V 1000P	
C9205	ECEA1HKA010	ELECTROLYTIC 50V 1	
C9206	ECEA1HKA3R3	ELECTROLYTIC 50V 3.3	
C9207	ECEA1HKA010	ELECTROLYTIC 50V 1	
C9208	ECUV1H223KBN	C CHIP 50V 0.022	
C9209	ECUV1H223KBN	C CHIP 50V 0.022	
C9210	ECEA1HKA010	ELECTROLYTIC 50V 1	
C9211	ECEA1HKA010	ELECTROLYTIC 50V 1	
C9301	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C9302	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C9303	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C9304	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C9305	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C9306	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C9307	ECEA0JKA470	ELECTROLYTIC 6.3V 47	
C9308	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L9001	ELESN101KA	100	
L9201	ELESN101KA	100	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P4201	VJHS0299	9P	
P4202	VJHS0290	PACK PIN 10P	
P4203	VJHS0298	PACK PIN 8P	
P4204	VJHS0298	PACK PIN 8P	
P4206	VJHS0295	PACK PIN 5P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E39	VMAS1912	P.C.B. SUPPORT ANGLE	

12.3.4. CAPSTAN STATOR C.B.A. NR ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC2501	AN3845SC	IC, LINEAR CAP./LOADING DRIVE	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R2501	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2502	ERJ8GEYJ1R0Z	MGF CHIP 1/8W 1	
R2505	ERJ6GEYJ222V	MGF CHIP 1/10W 2.2K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C2504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2506	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2507	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C2508	ECUV1E104KBN	C CHIP 25V 0.1	
C2509	ECUV1E104KBN	C CHIP 25V 0.1	
C2510	ECUV1E104KBN	C CHIP 25V 0.1	
C2511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C2517	ECUV1E104KBN	C CHIP 25V 0.1	
C2519	ECUV1H102KBN	C CHIP 50V 1000P	
C2520	ECUV1C225ZFN	C CHIP +80%-20% 16V 2.2	
C2521	ECUV1C225ZFN	C CHIP +80%-20% 16V 2.2	
C2522	ECUV1C225ZFN	C CHIP +80%-20% 16V 2.2	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2503	VJSS3337	CONNECTOR 2P	

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E127	XQN2+B35	SCREW,STEEL	
E128	XYN2+J7	SCREW W/WASHER,STEEL	
E129	LSMA0384	BACK PLATE,STEEL	
E130(IC2505)	EZMPS300F12	MR HEAD	
E131(P2502)	LSJS0097	CONNECOR 12P	

12.3.5. HEAD AMP C.B.A. (A,B,C,D,E,H,I,J,K) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3371SB	IC, LINEAR HEAD AMP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3502	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3503	ERJ6GEY0R00V	MGF CHIP 1/10W 0	●
R3507	ERJ6GEYJ331V	MGF CHIP 1/10W 330	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3501	ELESN101KA	100	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	LSJS0093	CONNECTOR 10P	
P4091	LSJWM6S085AC	CONNECTOR CABLE W/OUT PLUG,AC 40 VP-P	

12.3.6. HEAD AMP C.B.A. (F,G,L) ■

INTEGRATED CIRCUITS

Ref. No.	Part No.	Part Name & Description	Remarks
IC3501	AN3361SB	IC, LINEAR HEAD AMP	

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R3501	ERJ6GEYJ473V	MGF CHIP 1/10W 47K	
R3502	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3503	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3504	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3505	ERJ6GEYJ560V	MGF CHIP 1/10W 56	
R3506	ERJ6GEYJ561V	MGF CHIP 1/10W 560	
R3507	ERJ6GEYJ561V	MGF CHIP 1/10W 560	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C3504	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3505	ECEA1CKA470	ELECTROLYTIC 16V 47	
C3506	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3507	ECUV1H102KBN	C CHIP 50V 1000P	
C3508	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3511	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3512	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3513	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3519	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C3520	ECUV1H104ZFN	C CHIP +80%-20% 50V 0.1	
C3523	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3524	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3528	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3529	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	
C3532	ECUV1E104ZFN	C CHIP +80%-20% 25V 0.1	
C3533	ECUV1H103ZFN	C CHIP +80%-20% 50V 0.01	

COILS

Ref. No.	Part No.	Part Name & Description	Remarks
L3501	ELESN101KA	100	

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P2601	LSJS0096	CONNECTOR 12P	
P3501	VJSS0883	CONNECTOR 12P	
P4091	LSJWM6S085AC	CONNECTOR CABLE W/OUT PLUG,AC 40 VP-P	

12.3.7. CRT C.B.A. (A,B,C,D,E,F,G) ■

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q351	2SC1473-QNC		
	OR 2SC1473A(Q)		
	OR 2SC2482(T)		MKA
	OR 2SC4015(N)		MKA
Q352	2SC1473-QNC		
	OR 2SC1473A(Q)		
	OR 2SC2482(T)		MKA
	OR 2SC4015(N)		MKA
Q353	2SC1473-QNC		
	OR 2SC1473A(Q)		
	OR 2SC2482(T)		MKA
	OR 2SC4015(N)		MKA

RESISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
R351	ERG1ANJP153H	METAL OXIDE 1W 15K	MKA
R352	ERG1ANJP153H	METAL OXIDE 1W 15K	MKA
R353	ERG1ANJP153H	METAL OXIDE 1W 15K	MKA
R354	ERD25TJ272	2.7K	
R356	ERD25TJ272	2.7K	

Ref. No.	Part No.	Part Name & Description	Remarks
R357	ERDS2TJ392	3.9K	
R358	ERDS2TJ392	3.9K	
R359	ERDS2TJ392	3.9K	
R360	ERDS2TJ391	390	
R361	ERDS2TJ391	390	
R362	ERDS2TJ391	390	
R363	ERDS2TJ181	180	
R364	ERDS2TJ181	180	
R365	ERDS2TJ181	180	
R366	ERD25TJ272	2.7K	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C351	VCYSARH391KB	CERAMIC 50V 390P	
C352	VCYSARH391KB	CERAMIC 50V 390P	
C353	VCYSARH471KB	CERAMIC 50V 470P	
C354	VCKSKZM102KB	CERAMIC 2KV 1000P	MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	VJWS5MN330BD	CONNECTOR CABLE W/OUT PLUG,12V DC	MKA
P352	VJWS4NN265BD	CONNECTOR CABLE W/OUT PLUG,12V DC	MKA
P353	VJSS3333	1P SOCKET	MKA
P355	LJP65001A	CRT SOCKET	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E50	TMM7443-1	CLAMPER	

12.3.8. CRT C.B.A. (H,I,J,K,L) ■

TRANSISTORS

Ref. No.	Part No.	Part Name & Description	Remarks
Q351	2SC3063		MKA
	OR 2SC3063-RL		
	OR 2SC3271F(N)		MKA
	OR 2SC3619		MKA
	OR 2SC1473(Q)		
	OR 2SC1473A(Q)		
Q352	2SC3063		MKA
	OR 2SC3063-RL		
	OR 2SC3271F(N)		MKA
	OR 2SC3619		MKA
	OR 2SC1473(Q)		
	OR 2SC1473A(Q)		
Q353	2SC3063		MKA
	OR 2SC3063-RL		
	OR 2SC3271F(N)		MKA
	OR 2SC3619		MKA
	OR 2SC1473(Q)		
	OR 2SC1473A(Q)		

RESISTORS

Ref. No.	Part No.	PartName & Description	Remarks
R351	ERG2ANJP153H	METAL OXIDE 2W 15K	
R352	ERG2ANJP153H	METAL OXIDE 2W 15K	
R353	ERG2ANJP153H	METAL OXIDE 2W 15K	
R354	ERD25TJ272	2.7K	
R355	ERD25TJ272	2.7K	

Ref. No.	Part No.	PartName & Description	Remarks
R356	ERD25TJ272	2.7K	
R357	ERDS2TJ392	3.9K	
R358	ERDS2TJ392	3.9K	
R359	ERDS2TJ392	3.9K	
R360	ERDS2TJ391	390	
R361	ERDS2TJ391	390	
R362	ERDS2TJ391	390	
R363	ERDS2TJ121	120	
R364	ERDS2TJ121	120	
R365	ERDS2TJ121	120	

CAPACITORS

Ref. No.	Part No.	Part Name & Description	Remarks
C351	VCYSARH471KB	CERAMIC 50V 470P	
C352	VCYSARH471KB	CERAMIC 50V 470P	
C353	VCYSARH561KB	CERAMIC 50V 560P	
C354	VCKSKZM102KB	CERAMIC 2KV 1000P	MKA

PIN HEADERS

Ref. No.	Part No.	Part Name & Description	Remarks
P351	VJWS5MN410BD	CONNECTOR CABLE W/OUT PLUG,12V DC	MKA
P352	VJWS4NN370BD	PARALLEL CONNECTOR 4P	MKA
P353	TJSC01200	CRT SOCKET	MKA

MISCELLANEOUS

Ref. No.	Part No.	Part Name & Description	Remarks
E50	TMM7443-1	CLAMPER	

12.3.9. SUMMARY OF "E" ITEM NUMBERS

REFER TO ELECTRICAL PARTS LIST FOR MODEL INFORMATION

Ref. No.	Part No.	Part Name & Description	Remarks
E1	VEPS3080A	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3080B	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3080C	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3080D	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082A	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082B	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082C	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082D	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082E	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082F	TV/VCR MAIN C.B.A.	RTL
E1	VEPS3082G	TV/VCR MAIN C.B.A.	RTL
E2	VEPS4032A	AUDIO C.B.A.	RTL
E6	VEPS5033Z	HEAD AMP C.B.A.	RTL
E6	VEPS5034Z	HEAD AMP C.B.A.	RTL
E17	LRP63004A	CRT C.B.A.	RTL
E17	LRP63005A	CRT C.B.A.	RTL
E21	ENG36701G	UHF/VHF TUNER	
E21	ENG36702G	UHF/VHF TUNER	
E22	LFX6106A	AC CORD W/PLUG,125V	⚠
E22	LFX6106B	AC CORD W/PLUG,125V	⚠
E22	LSJA0256	AC CORD W/PLUG,125V	⚠
E22	LSJA0257	AC CORD W/PLUG,125V	⚠
E23	EYF52BC	FUSE HOLDER	
E27	TSOP1837UH1	INFRARED RECEIVER UNIT	
E39	VMAS1912	P.C.B. SUPPORT ANGLE	
E41	TUC76677-1	HEAT SINK	
E41	TUC77626	HEAT SINK	
E42	LUS23004A	HEAT SINK	
E43	LUS23005B	HEAT SINK	
E44	LML69001A	ANODE LEAD CLAMPER	
E46	XTV3+10G	TAPPING SCREW,STEEL	
E47	XTW3+10J	TAPPING SCREW,STEEL	
E48	XYN3+F10S	SCREW W/WASHER,STEEL	
E49	XYN3+F6S	SCREW W/WASHER,STEEL	
E50	TMM7443-1	CLAMPER	
E67	XTV3+8J	TAPPING SCREW,STEEL	
E83	LUS23003A	HEAT SINK	
E84	TUX77809	CLAMPER	
E85	XYN3+J8	SCREW W/WASHER,STEEL	
E86	LUS61016A	SHIELD PLATE,STEEL	
E87	XTV3+8F	TAPPING SCREW,STEEL	
E126	VEMS0331	CAPSTAN STATOR C.B.A. NR	
E127	XQN2+B35	SCREW,STEEL	
E128	XYN2+J7	SCREW W/WASHER,STEEL	
E129	LSMA0384	BACK PLATE,STEEL	
E130(IC2505)	EZMPS300F12	MR HEAD	
E131(P2502)	LSJS0097	CONNECOR 12P	
E132	XYN3+F12S	SCREW W/SASHER,STEEL	
E133	VEKS5751	GROUNDING WIRE	